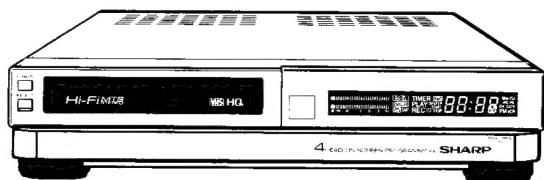


SHARP**SERVICE MANUAL**

S80G6VC-H870U

VHS VIDEO CASSETTE RECORDER

MODELS VC-H870U/C VC-8870U/C

In the interests of user-safety (Required by safety regulation in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

This Service Manual describes only the procedures of adjustments commonly specified. For more details, please refer to the Adjustment Guide.

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SHARP ELECTRONICS CORPORATION

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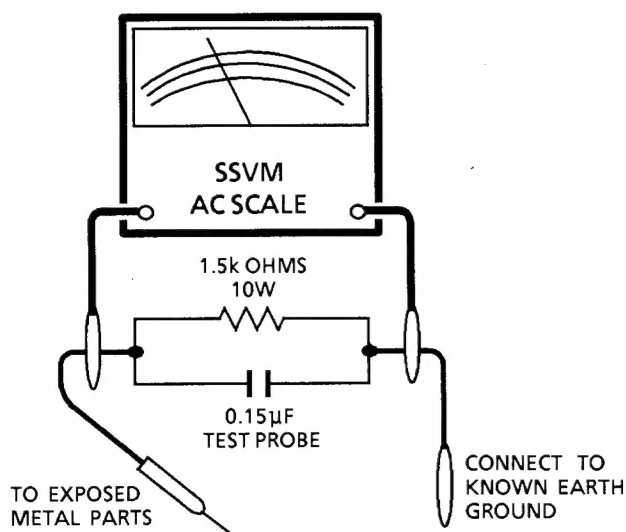
IMPORTANT SERVICE NOTES

BEFORE RETURNING THE VIDEO CASSETTE RECORDER

Before returning the video cassette recorder to the user, perform the following safety checks.

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the video cassette recorder.
2. Inspect all protective devices such as non-metallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor/capacitor networks, mechanical insulators etc.
3. To be sure that no shock hazard exists, check for current in the following manner.
 - Plug the AC line cord directly into a 120 volt AC outlet (Do not use an isolation transformer for this test).
 - Using two clip leads, connect a 1.5k ohm, 10watt resistor paralleled by a 0.15 μ F capacitor in series with all exposed metal cabinet parts and a known earth ground, such as a water pipe or conduit.
 - Use an SSVM or VOM with 1000 ohm per volt, or higher, sensitivity or measure the AC voltage drop across the resistor (See Diagram).
 - Move the resistor connection to earth exposed metal part having a return path to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, etc.) and measure the AC voltage drop across the resistor. Reverse

the AC plug on the set and repeat AC voltage measurements for each exposed part. Any reading of 0.45V rms (this corresponds to 0.3mA rms AC.) or more is excessive and indicates a potential shock hazard which must be corrected before returning the video cassette recorder to the owner.



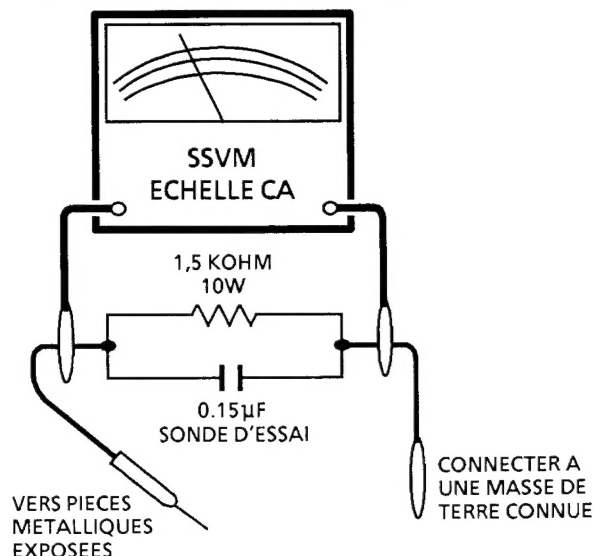
NOTES DE SERVICE IMPORTANTES

AVANT DE RENDRE LE MAGNETOSCOPE

Avant de rendre le magnétoscope à l'utilisateur, effectuer les vérifications de sécurité suivantes.

1. Vérifier toutes les gaines de fil pour être sûr que les fils ne sont pas pincés ou que le matériel n'est pas coincé entre le châssis et les autres pièces métalliques dans le magnétoscope.
2. Vérifier tous les dispositifs de protection tels que les boutons de commande non métalliques, les matériaux d'isolement, le dos du coffret, les couvercles de compartiment et ajustement ou les boucliers, les réseaux de résistance / condensateur d'isolement, les isolateurs mécaniques, etc.
3. Pour être sûr qu'il n'y a aucun risque de choc électrique, vérifier le courant de la manière suivante.
 - Brancher le cordon d'alimentation secteur directement dans une prise de courant de 120 volts. (Ne pas utiliser de transformateur d'isolement pour cet essai).
 - Utiliser deux fils à pinces et connecter une résistance de 10 watts 1,5 kohm en parallèle avec un condensateur de 0,15 μ F en série avec des pièces du coffret métallique exposées et une masse de terre connue telle qu'un tuyau ou un conduit d'eau.
 - Utiliser un SSVM ou VCM avec une sensibilité de 1000 ohms par volt ou plus ou mesurer la chute de tension CA entre la résistance (voir diagramme).
 - Déposer la connexion de la résistance à la pièce

métallique exposée à la terre ayant un parcours de retour au châssis (antenne, coffret métallique, têtes de vis, boutons et arbres de commande, etc.) et mesurer la chute de tension CA entre la résistance. Inverser la fiche CA sur l'appareil et répéter les mesures de tension CA pour chaque pièce exposée. Toute lecture de 0,45 Vrms (ceci correspond à 0,3 mArms CA) ou plus est excessive et signale un danger de choc qui doit être corrigé avant de rendre le magnétoscope à son propriétaire.



WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.



CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



This symbol warns the user of uninsulated voltage within the unit that can cause dangerous electric shocks.



This symbol alerts the user that there are important operating and maintenance instructions in the literature accompanying this unit.

CAUTION



This symbol mark means following.
For continued protection against fire hazard replace only with same type fuses F901 (1.6A, 125V) and F902 (2.5A, 125V).

ATTENTION: POUR REDUIRE LES RISQUES D'INCENDIE OU DE CHOC ELECTRIQUE, NE PAS EXPOSER CET APPAREIL A LA PLUIE OU A L'HUMIDITE.



ATTENTION

RISQUE DE CHOC ELECTRIQUE
NE PAS OUVRIR



ATTENTION: AFIN DE REDUIRE LES RISQUES DE CHOC ELECTRIQUE, NE PAS RETIRER LE COUVERCLE. AUCUN ORGANE INTERNE NE PEUT ETRE REPARÉ PAR L'UTILISATEUR. CONFIER L'APPAREIL A UN DEPANNEUR QUALIFIE.



Ce symbole signale à l'utilisateur la présence d'une tension non isolée à l'intérieur de l'appareil qui peut être la cause de secousses électriques dangereuses.



Ce symbole avertit l'utilisateur que des instructions importantes relatives à l'utilisation et à l'entretien se trouvent dans le manuel accompagnant l'appareil.

PRECAUTION:



Ce symbole signifie que:
pour une protection continue contre les risques d'incendie, ne remplacer qu'avec des fusibles du même type, F901 (1,6A, 125V) et F902 (2,5A, 125V).

1. GENERAL INFORMATION

1-1 FEATURES

1. Part-Time Full Loading System for Instant Playback/Record
2. H. Q. System for Better Resolution and Color Reproduction.
3. Double Comb Filter for Crisper, Cleaner Pictures.
4. 155 CH. Cable Ready with Frequency Synthesizer Tuning System.
5. Built-in 1-year, 8-Event or Daily and Weekly Programmable Timer 12-Hours AM/PM Indication Fluorescent Display Clock.
6. 56-Key Infrared Remote Control.
7. On-Screen Display for Setting/Checking Programming and Checking Operation Modes.
8. Blue Screen Noise Elimination Function.
9. Simple Recording Timer with Auto Return.
10. Automatic TV/VCR Outputs Signal Selector (VCR Play Mode Preference).
11. Built-in DEW Warning indicator and DEW Sensor.
12. Automatic Playback Function.
13. High speed Video Search.
14. Random repeat function.
15. VHS Hi-Fi Stereo Sound Recording and playback.
16. Automatic Head Cleaning System

1-2 SPECIFICATIONS

1) Recording system

Format: VHS NTSC standard
Luminance signal: FM recording
Chroma signal: Low frequency converted direct recording
Color system: NTSC
Number of video head: 4
Tape speed: SP (33.35mm/sec.)
LP (16.67mm/sec.)
EP (11.12mm/sec.)

2) Video signal

Input level: 0.5~2.0Vp-p, 75 ohm Unbalanced
Output level: 1.0Vp-p, 75 ohm Unbalanced
Horizontal resolution: 230 lines (SP mode)
Signal to noise ratio: 45dB (SP mode)

3) Audio signal

Input level: -8dBs (309mVrms, 47k ohm)
Output level: -8dBs (309mVrms, 1k ohm)
Frequency response: 80Hz~10kHz (SP mode linear), 20Hz~20kHz (Hi-Fi mode)
Signal to noise ratio: 43dB (SP mode linear), 74dB (Hi-Fi mode)
Wow and flutter: 0.3% max. (SP mode), 0.4% max. (LP mode), 0.5% max. (EP mode), 0.005% max. Wrms (Hi-Fi mode) with T-120 tape

4) Receiving channel

VHF: Channels 2~13
UHF: Channels 14~69
CATV: Channels 02~99 (STANDARD), 01~99 (HRC/IRC)
Antenna input Impedance: VHF/UHF; 75 ohm

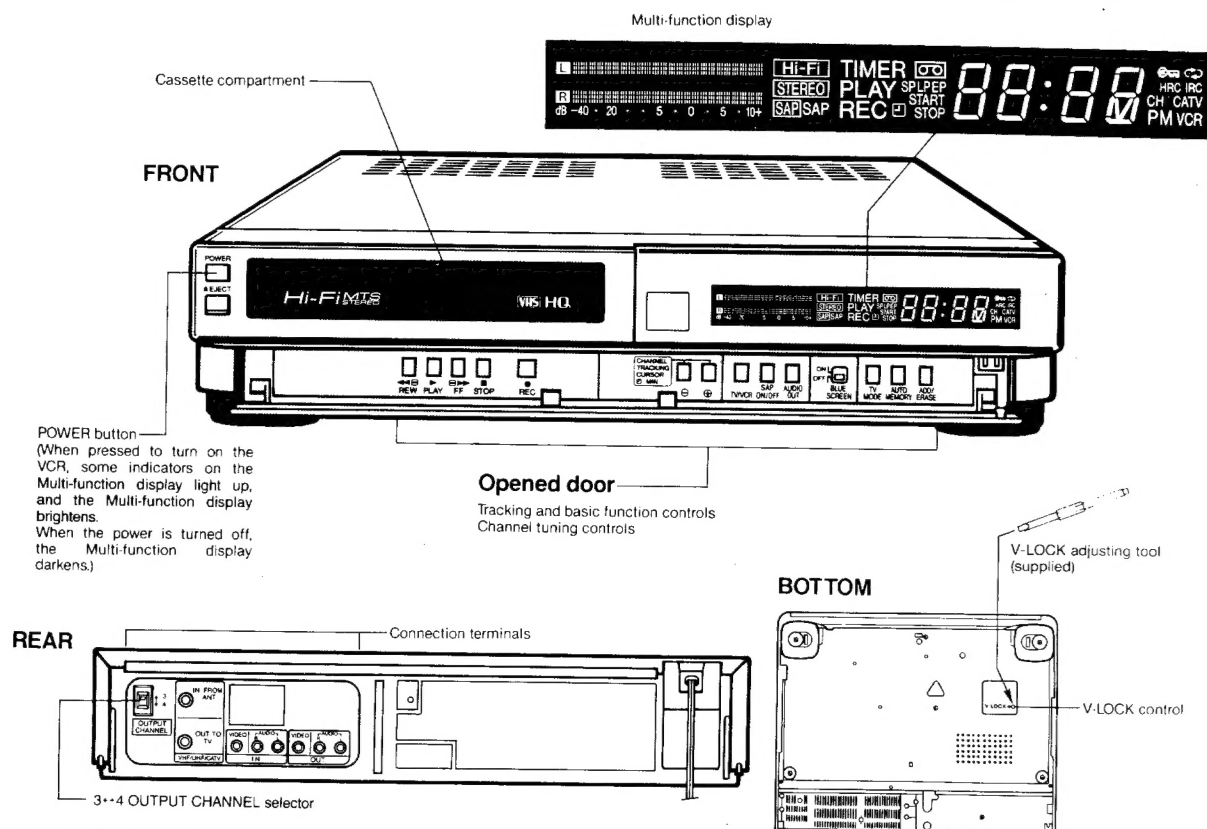
5) Others

Fast forward/Rewind time: Within 5 minutes with T-120 cassette
Power source: 120V, 60Hz
Power consumption: 29W
Allowable ambient temperature: 5°C to 40°C (41°F to 104°F)
Operating humidity: below 80% RH
Dimensions: 43 (W), 34.8 (D), 8.9 (H) cm
(16-15/16, 13-11/16, 3-1/2 inches)
Weight: 6.1kg (13.4lbs.)
Accessories included: Infrared remote control, Battery (2 pcs.)
Operation manual, Registration card
75 ohm round coaxial cable, V-Lock adjusting tool

Note: Specifications may be changed for improvement without notice.

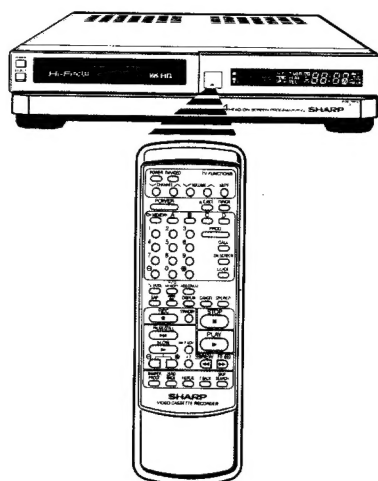
1-3 LOCATION OF MAJOR COMPONENTS AND CONTROL

MAJOR COMPONENTS OF YOUR VCR

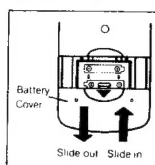


REMOTE CONTROL

The Remote Control lets you operate the VCR at a distance. It has all the major controls necessary for turning on/off your VCR, viewing the TV, changing the channels and playing back or recording a video cassette. Just aim the front of the Remote Control at your VCR and press the control buttons as you would on your VCR.



Battery Installation



Install the batteries included with the VCR before use.

- Slide the battery cover out.
- Insert the batteries, matching their polarities (+ and -) to the markings inside the Remote Control.
- Replace the cover.

If the Remote Control does not operate or fails to function normally, replace the batteries. The Remote Control operates on two "AAA" 1.5 volt batteries, available at electronics and camera stores.

POWER button:

- If the power is turned off when the timer is set, the timer standby mode is engaged. If the power is turned on during the timer standby mode, the timer standby mode is disengaged.

Numbered buttons:

- Used to select the channel.
- Used to set the clock and timer with On Screen Display.
- Used to change the channel up or down in TV mode.
- Used to adjust the TRACKING while playing the tape or variable slow motion mode.
- Used to move the cursor forwards/backwards on the menu screen.
- Used to change the minutes setting while setting the Simple Recording Timer.

TV MODE button:

- Used to select a TV mode.

AUTO MEMORY button:

- Used to select the AUTO MEMORY mode.

SAP button:

- Used to select the SAP mode.

AUDIO OUT button:

- Used to select the Audio Output mode.

REC button:

- Used to record a program. If you press it twice, the VCR will enter the Simple Recording Timer mode.

PAUSE/STILL button:

- Used to pause or still the tape.

SLOW button:

- Used to change the speed of slow playback.

TAMPER PROOF button:

- Used to lock any selected mode.

(AUTO) ZERO BACK button:

- Used to rewind or forward the tape to the counter '0000' point.

TV FUNCTIONS control buttons (operate SHARP TVs*)

- This system Remote Control can operate the following SHARP television sets (equipped with remote control units):
- Any model produced after 1985
- Any K-series model (produced during 1985)
- J-series models 13J41, 13J350/370, 19J91/93, 25J205/307/405, 25J630/750 and 20J650 (produced during 1984)

It cannot be used with any other J-series model television or any other Sharp television produced earlier than 1984.

EJECT button

- Used to eject the tape.

TV/VCR button

- Used to select the TV or VCR mode.

Favorite channel (Direct CH MEMORY) buttons

- Used to select the menu screen.

PROG button:

- Used to select the menu screen.

CALL button:

- Used to check the program contents.

ON SCREEN button:

- Used to change the On Screen Display.

GUIDE button:

- Used to display the OSD Instruction Coach.

ADD/ERASE button:

- Used to erase unwanted channels from the memory or to add new channels to the memory.

DISPLAY button:

- Used to change the display. (CLOCK CHANNEL COUNTER)

CANCEL button:

- Used to reset the tape counter when the tape counter is displayed.

STOP button:

- Used to cancel the Random Repeat mode.

SP/LP/EP button:

- Used to select the tape speed.

PLAY button:

- Used to start the tape playback.

FF button:

- Used to fast forward the tape.

SKIP SEARCH button:

- Used to start the skip search.

F. BACK (FLASHBACK) button:

- Used to recall the channel previously viewed.

REW button:

- Used to rewind the tape.

×2 button:

- Used to select the Double Speed Playback mode.

REPEAT (RANDOM REPEAT) button:

- Used to playback a desired scene repeatedly.

F. ADV. button:

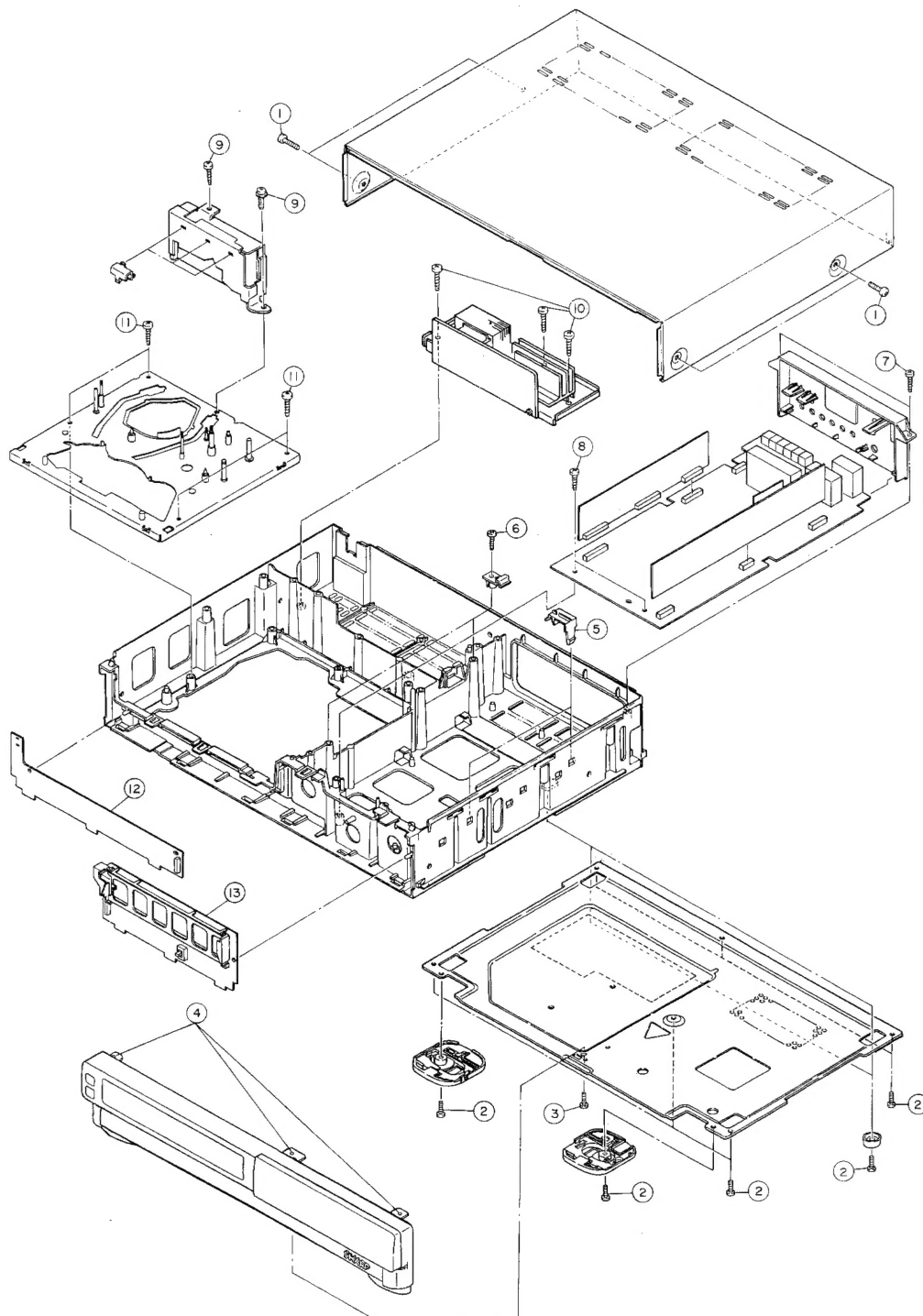
- Used to select the Frame Advance mode.

STANDBY button:

- Used to set start time of the Simple Recording Timer.

2. DISASSEMBLY OF MAJOR BLOCKS

1. Remove 4 screws ① to remove the upper cabinet.
2. Remove 10 screws ② to remove bottom panel.
3. Remove screw ③.
4. Unlatch latches ④ to detach the front panel.
5. Remove Y/C PWB holders ⑤.
6. Remove 2 screws ⑥ first and then the Hi-Fi PWB holders.
7. Remove 2 screws ⑦ to remove the antenna terminal plate.
8. Remove 2 screws ⑧ to remove the main PWB.
9. Remove 2 screws ⑨ to remove the head amp PWB.
10. Remove 3 screws ⑩ to remove the power unit.
11. Remove 4 screws ⑪ to remove the mechanism chassis.
12. Unfasten clips ⑫ to remove the operation PWB.
13. Unfasten clips ⑬ to remove the timer PWB.



3. MECHANICAL ADJUSTMENT/AND MASTER CAM REPLACEMENT

(Refer to the VCR TECHNICAL MANUAL (1990 Vol. 1) for more details not covered in this service manual.)

3-1 HOW TO RUN MECHANISM WITHOUT CASSETTE

It is possible to run the mechanism without cassette by taking the following procedure. (See Figure 1-1)

- (1) Unplug the AC plug from AC outlet if it is connected.
- (2) Unhook the cassette loading belt ①.
- (3) Disconnect the full flat cable ②.
- (4) Remove 2 red screws ③.
- (5) Remove the side stabilization bar ④ by removing one screw.
- (6) Slide the cassette housing assembly backward a little, lift and remove it.
- (7) Reconnect the AC plug and press the POWER button to turn on.
- (8) Press the tape operation button desired.

Note:

Since there is no reel pulse generated in the REW and VSR modes, the take-up reel should be rotated once every 3 to 4 seconds in order to keep running.

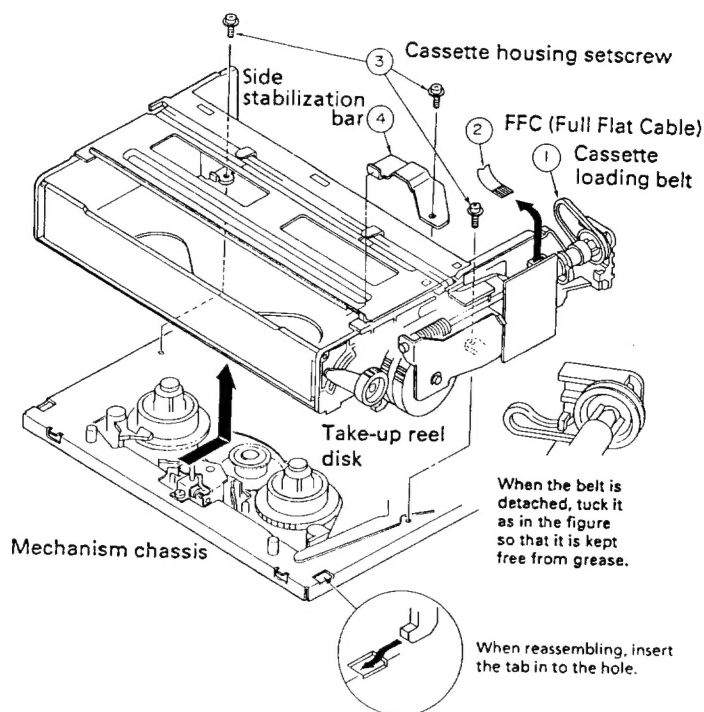


Figure 1-1

3-2 FAST FORWARD BACK TENSION CHECK

(Using torque gauge)

- (1) Remove the cassette housing. (See section 4-1.)
- (2) Place the torque gauge securely onto the supply reel.
- (3) Press the FF (Fast Forward) button.
- (4) Slowly rotate the torque gauge clockwise and read the torque.
- (5) Check that the torque is $15 \pm 5\text{g} \cdot \text{cm}$.
(If the torque is out of specified value, check if the brake pad is properly applied to the supply reel.)

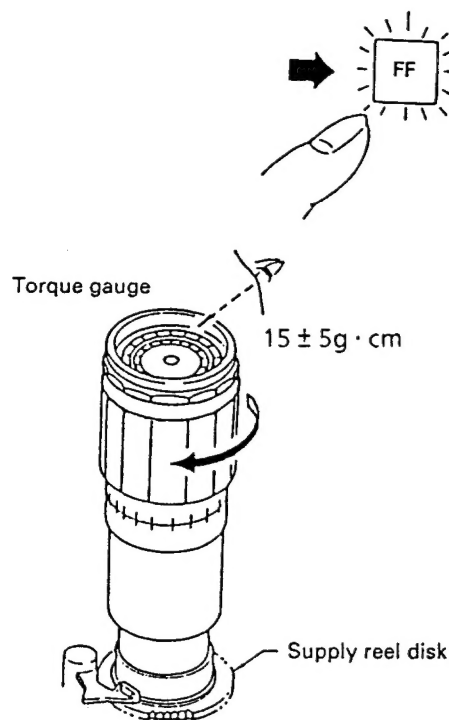


Figure 1-2

3-3 REWIND BACK TENSION CHECK (Using torque gauge)

- (1) Remove the cassette housing assembly. (See section 3-1.)
- (2) Place the torque gauge securely onto the take-up reel.
- (3) Press the REW button.
- (4) Slowly rotate the torque gauge counter-clockwise and read the torque. (See Note in section 3-1.)
- (5) Make sure that the back tension is $15 \pm 5\text{g} \cdot \text{cm}$.
(If the torque is out of specified value, check if the brake pad is properly applied to the take-up reel.)

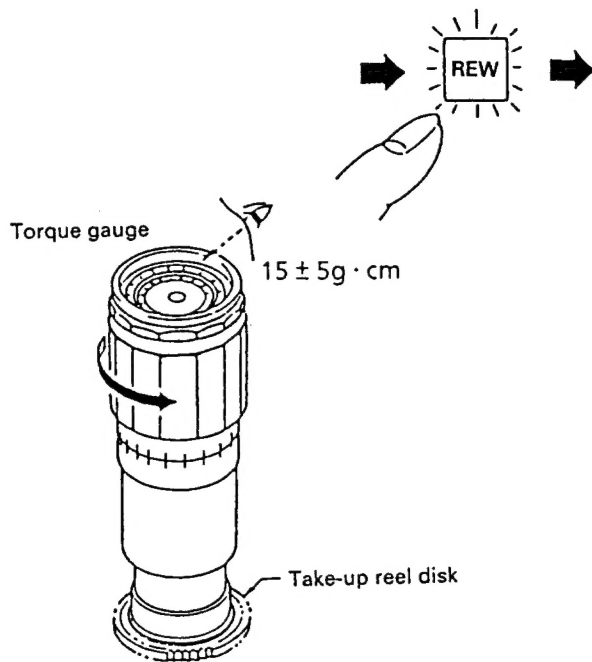


Figure 1-3

3-4 VSR (Video Search Reverse) BACK TENSION CHECK (Using torque gauge)

- (1) Remove the cassette housing assembly. (See section 3-1.)
- (2) Place the torque gauge securely onto the take-up reel.
- (3) Press the PLAY button and press the REW button to set the unit in VSR mode.
- (4) Slowly rotate the torque gauge counter-clockwise and read the torque. (See Note in section 3-1.)
- (5) Make sure that the torque is $45 \pm 20g \cdot cm$.

Note:

If the torque is out of specified value, check if the brake pad is properly applied to the take-up reel.

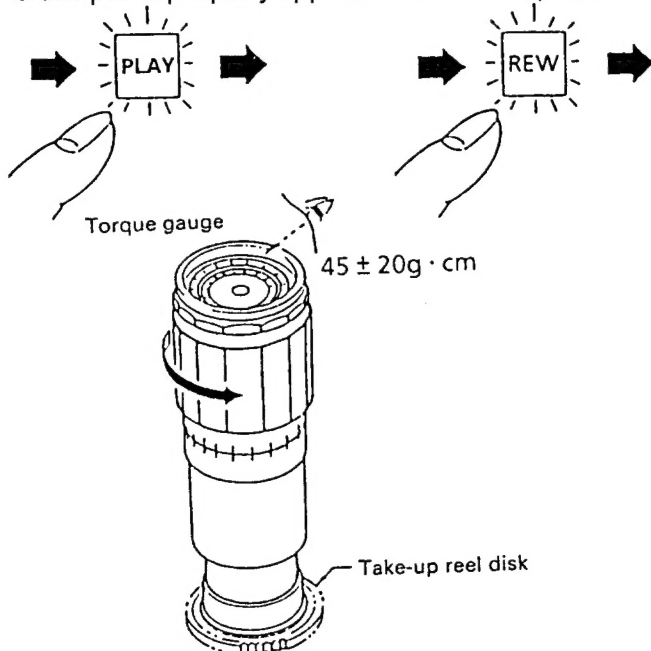


Figure 1-4

3-5 PLAYBACK BACK TENSION CHECK/ADJUSTMENT

There are 2 ways to check the back tension, A and B as follows.

- A. By using a torque cassette (See Figures 1-5 and 1-6.)
- (1) Remove the cassette housing assembly. (See section 3-1.)
 - (2) Place the torque cassette on reel tables. Place a weight of approx 500g (or 1 lb.) on the torque cassette or press the cassette lightly with the finger so that the torque cassette is kept in place.
 - (3) Press the PLAY button to set the unit in playback mode.
 - (4) Read the torque and make sure it is between 23g-cm to 28g-cm.
(If the torque is out of specified value, adjust it as follows.)

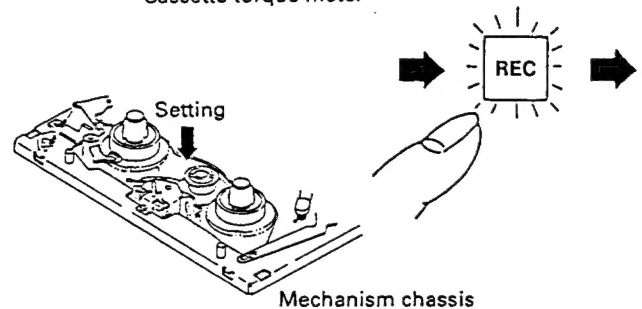
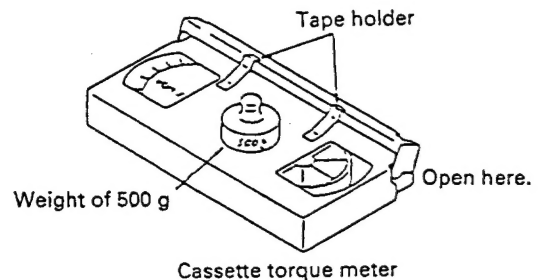


Figure 1-5

ADJUSTMENT

- (1) Lift the tip of the tension spring hook plate and turn it to the next notch (Hole A or Hole B). (The Hole A is for more tension and Hole B is for less tension.)
- (2) Make sure that the playback back tension is within the specified value (23g-cm to 28g-cm).

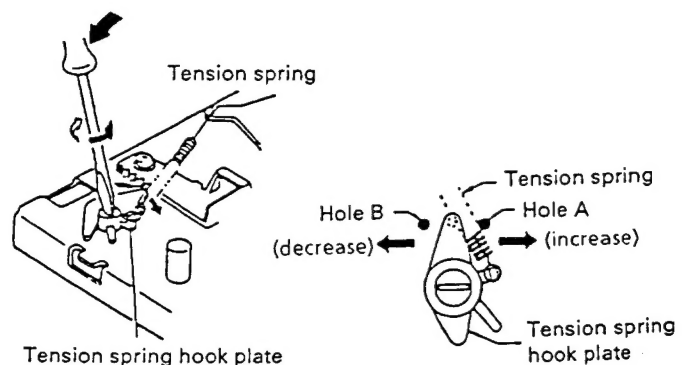


Figure 1-6

B. By using tape tension meter (Tentelometer)

- (1) Insert a cassette and play it.
- (2) Place the tape tension meter in the middle of the full erase head and the guide roller A as shown in Figure 1-7.
- (3) Read the torque and make sure it is between 23g and 28g.
(If the torque is out of specified value, adjust it as mentioned above.)

Note:

Be careful not to touch the full erase head or upper drum with the tape tension meter.

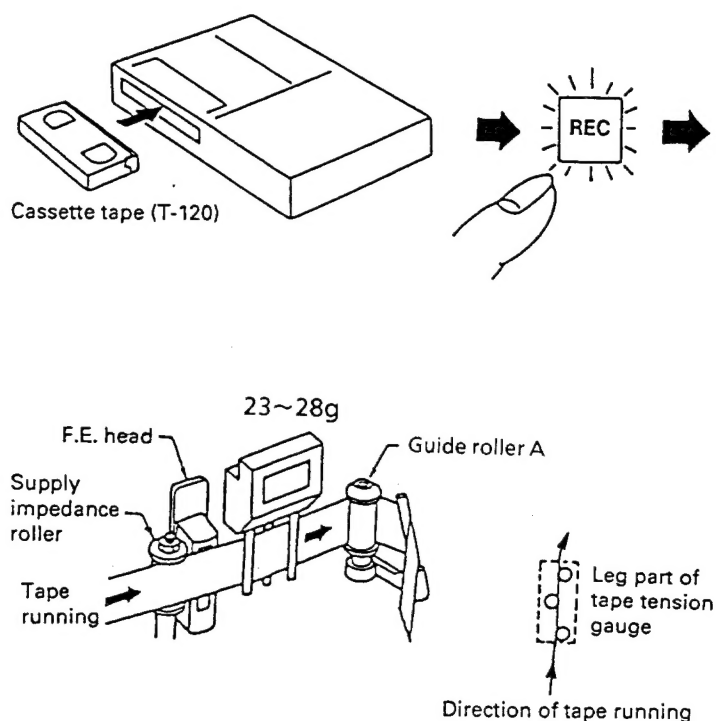
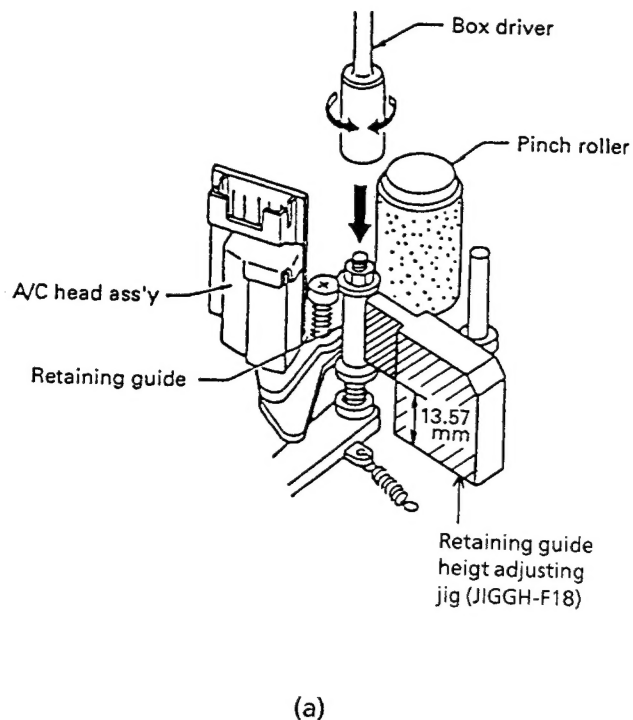


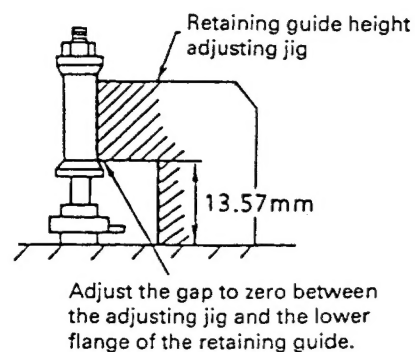
Figure 1-7

3-6 RETAINING GUIDE HEIGHT ADJUSTMENT

- (1) Place the retaining guide height adjustment jig (Part code: JIGGH-F18) as shown in Figure 1-8 (a).
- (2) Adjust the height of the retaining guide by turning the nut so that no space is visible between the jig and the lower flange of the retaining guide as shown in Figure 1-8 (b).



(a)

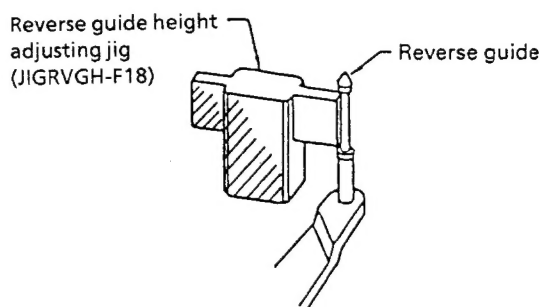


(b)

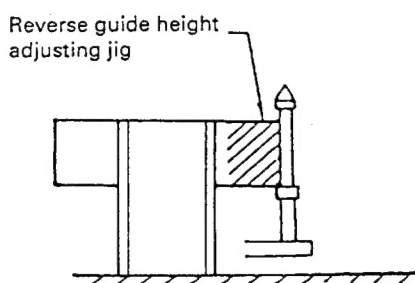
Figure 1-8

3-7 REVERSE GUIDE HEIGHT ADJUSTMENT

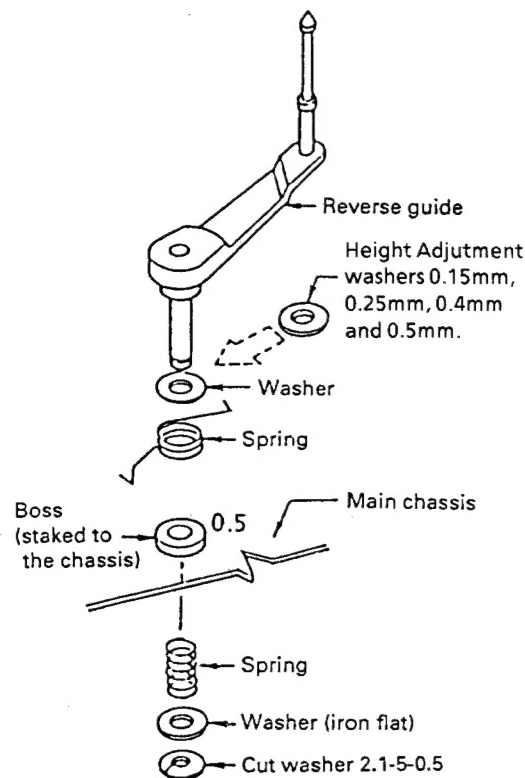
- (1) Place the reverse guide height adjustment jig (Part code: JIGRVGH-18) as shown in Figure 1-9 (a) and check that no space is visible between the lower flange of the reverse guide and the lower edge of the jig as shown in Figure 1-9 (b).
- (2) To readjust the height of the reverse guide, remove the cut washer located underneath the guide. Lift the guide out, and insert the washer(s) to produce the proper height as shown in Figure 1-9 (c).
(Use more than 1 washer if necessary. Thicknesses of the available washers are 0.13 mm, 0.25 mm, 0.4 mm and 0.5 mm.)
Reinstall as per the diagram and check the height again.



(a)



(b)



(c)

Figure 1-9

3-8 A/C HEAD POSITION ADJUSTMENT

- (1) Connect the oscilloscope to pin (9) of CA connector located on the Y/C PWB.
- (2) Play the alignment tape (Part code: VROATSV).
- (3) Press both tracking buttons at the same time to set the tracking in center. (Tracking buttons are located behind the front panel.)
- (4) Turn the X-position adjustment nut with a flat screw driver for maximum amplitude of the FM envelope.
- (5) Check flatness of the FM envelope and timing of head switching point. (See the electrical adjustment, section 4-1.)

Note:

If the FM envelope is not flat, check the height of the guide roller (See the VCR TECHNICAL MANUAL 1990 Vol. 1)

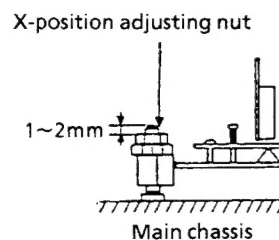


Figure 1-10

3-9 REPLACEMENT OF MASTER CAM

REMOVAL

- (1) Remove the cassette housing assembly. (See step 3-1.)
- (2) Remove the loading motor block assembly by removing 3 screws.
- (3) Remove the E-ring ①. (See Figure 1-11)
- (4) Pull out the pinch roller lever ② from the shaft.
- (5) Pull out the master cam ③ upward.

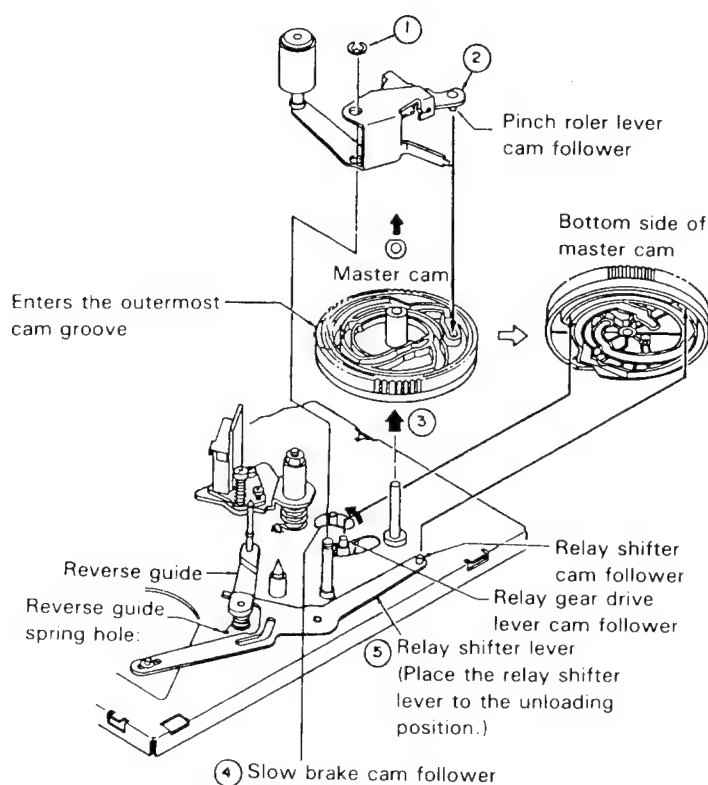


Figure 1-11

REASSEMBLY

- (1) Pull the tape loading guide rollers to unloading position.
- (2) Set the relay shifter lever ⑤ in center click position.
- (3) Apply grease on the new master cam and place it on the shaft with the "flat key" of the master cam facing front.
- (4) Shift the Slow brake cam follower ④ in the direction of arrow. Lightly press the master cam with your finger and turn it about 30 degrees counterclockwise so that the master cam falls down into position.
- (5) Turn the master cam about 90 degrees counterclockwise to the unloading position and place the pinch roller lever ass'y ② with its pin riding in the outer groove on the master cam, then secure it with the E-ring ①.
- (6) Turn the master cam from one end to another by hand and make sure all levers are smoothly driven by the master cam.

Notes:

If pins are positioned in the wrong groove, the master cam and levers may be damaged when the loading motor is energized.

- (7) Turn the master cam counterclockwise to its full extent.
- (8) Align the mechanical position switch on the loading motor block assembly so that the timing marks (2 triangles) meet.
- (9) Put the loading motor block assembly in place and tighten the 3 screws.
- (10) Install the cassette housing assembly, tighten the 2 screws and reconnect the flat cable.

4. ELECTRICAL ADJUSTMENT

Notes

(1) Before the adjustment:

Electrical adjustments discussed here are often required after replacement of electronic components and mechanical parts such as video heads. Check that the mechanism and all electric components are in good working condition prior to the adjustment, otherwise adjustments may not be completed.

(2) Instruments required:

- ⊙ Color monitor TV
- ⊙ Oscilloscope
- ⊙ NTSC Pattern generator
- ⊙ Frequency counter
- ⊙ Alignment tape (VROATSV)
- ⊙ Hi-Fi alignment tape (VROATFPS)
- ⊙ Blank video cassette
- ⊙ Connector (QCNW-6444GEZZ)
- ⊙ AC milli-voltmeter

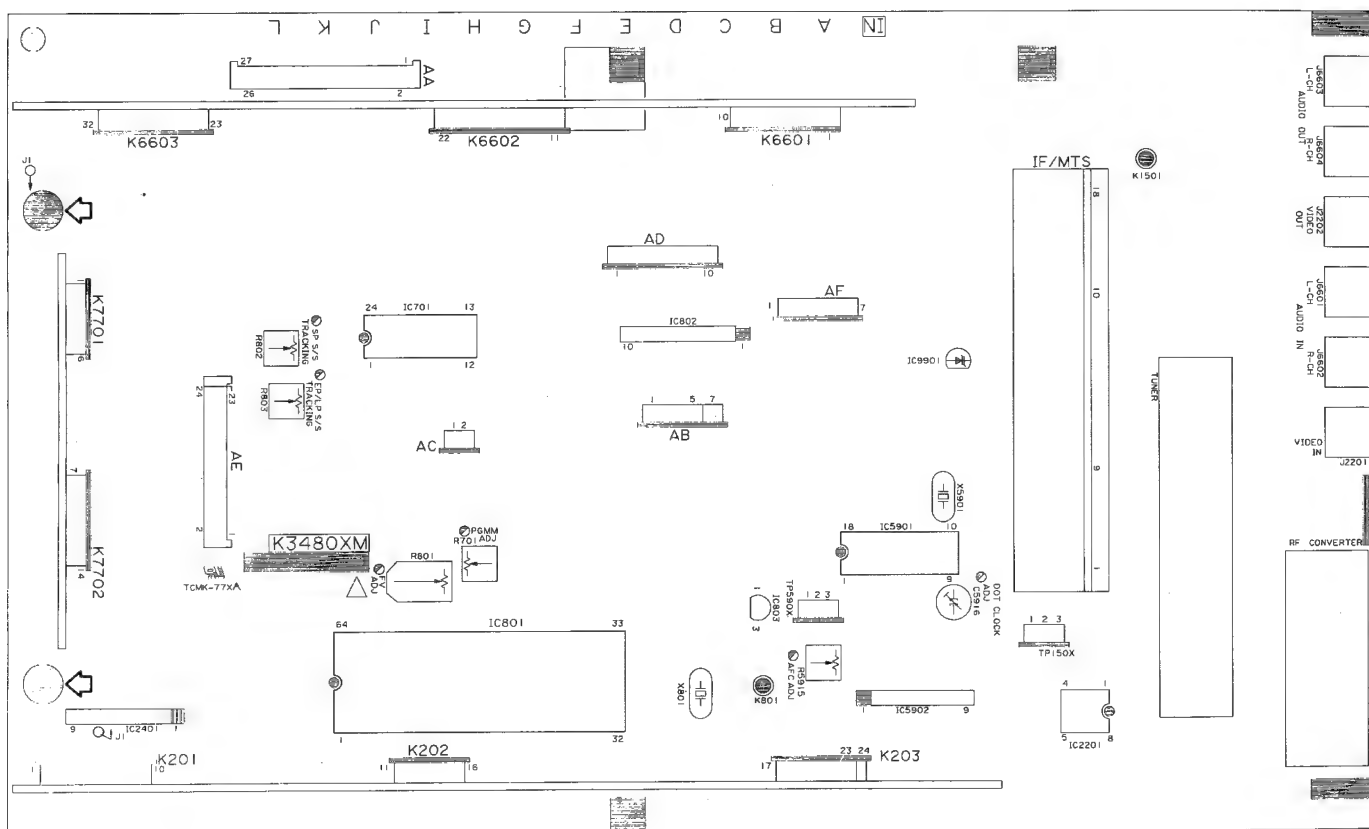


Figure 2-1 MAIN

4-1 HEAD SWITCHING POINT

Measuring instrument	Oscilloscope
Mode	Playback
Cassette	Alignment tape (VROATSV)
Test point	TP502, VIDEO OUT jack
Control	R701
Specification	$6.5 \pm 0.5H$

- (1) Connect a dual trace oscilloscope to test point TP502 located on the Y/C PWB and the VIDEO OUT jack. (Triggered on TP502)

- (2) Play the alignment tape.

- (3) Press both tracking control buttons at the same time to set the tracking in center.

- (4) Adjust R701 so that the edge of the head switching pulse is $6.5H$ (lines) ahead of the vertical sync as shown in Figure 2-2.

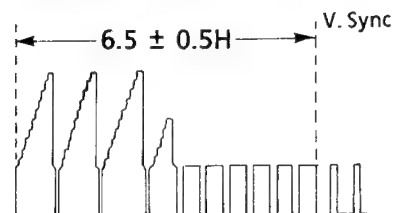


Figure 2-2

4-2 SLOW TRACKING PRESET

Measuring instrument	Monitor TV
Mode	Playback
Cassette	Self-recorded tape (See Note ① below.)
Control	R802 (SP), R803 (LP, EP)
Specification	Minimum noise on monitor screen

- (1) Have the unit receive a TV signal, or feed the video signal to the VIDEO IN jack. (See Note ② below)
- (2) Set the tape speed in SP mode (in LP/EP mode for R803) by using the remote control and record the signal on tape.
- (3) Rewind and play the tape where signal was recorded in above step.
- (4) Press the SLOW button on the remote control, and press both tracking control buttons at the same time to set the slow tracking at the center.
- (5) Look the monitor screen and adjust R802 (R803 for LP, EP) so that the noise disappears from the screen.
- (6) Play the tape a few seconds then press the SLOW button again and make sure there is no noise in the screen.

Note:

- ① Self-recorded tape means a cassette whose program was recorded by the unit being adjusted.
- ② When the video signal is fed to VIDEO IN jack, select the channel "00" to set the VCR in the A/V mode.

4-3 FV (False Vertical Sync) OF STILL PICTURE

Measuring instrument	Monitor TV
Mode	Still Playback
Cassette	Self-recording tape (SP / LP, EP) (See above Note)
Control	R801
Specification	No vertical jitter of picture

- (1) Play a cassette which was recorded by the unit in SP mode.
- (2) Press the PAUSE / STILL button on the remote control to freeze the picture.
- (3) Adjust R801 so that the vertical jitter of the picture is minimized.
- (4) Play and freeze the self-recorded tape in LP, EP mode and make sure vertical jitter of the picture is not noticeable.

Note:

The best position of R801 depends on the exact monitor TV. R801 is a user-adjustable control by using the V-Lock adjustment tool through a hole on the bottom cover of the unit.

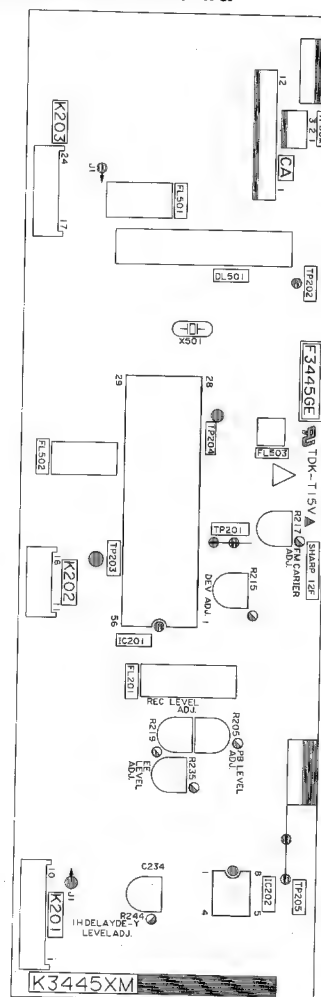


Figure 2-3

4-4 VIDEO E-E LEVEL

Measuring instrument	Oscilloscope
Mode	Stop or Record
Input signal	EIA color bar (1.0Vp-p)
Test point	VIDEO OUT jack
Control	R235
Specification	1.0V \pm 0.04 Vp-p

- (1) Connect a 75 ohm resistor to the VIDEO OUT jack and hook the oscilloscope across this resistor. (See Note below.)
- (2) Feed the color bar signal to the VIDEO IN jack in the A/V mode.
- (3) Adjust R235 so that the signal amplitude is 1.0 Vp-p as shown in Figure 2-4.

Note:

If the terminating resistor is missing, the signal amplitude will be doubled.

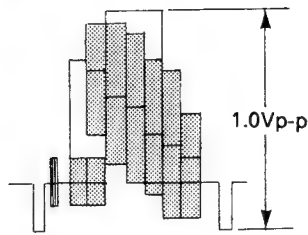


Figure 2-4

4-5 RECORDING LEVEL

Measuring instrument	Oscilloscope (100 mV/div, 10 or 20 μ sec/div)
Mode	Stop or Record
Input signal	EIA color bar (1.0Vp-p)
Test point	TP201
Control	R219
Specification	500 mV

- (1) Connect an Oscilloscope to TP201.
- (2) Select channel "0" (A/V input mode) and feed the color bar signal to the VIDEO IN jack.
- (3) Adjust R219 so that the signal amplitude between sync tip and 100% white is 500mV as shown in Figure 2-5.

Note:

The white clip will be 188~190% if it is 500 mV in five divided readings in the range of 100 mV/div between sync tip and 100% white.

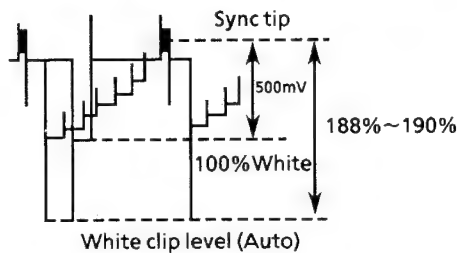


Figure 2-5

4-6 1H DELAYED PB-Y GAIN

Measuring instrument	Oscilloscope
Mode	Playback
Cassette	Alignment tape (VROATSV)
Test point	TP203
Control	R244
Specification	Minimum video signal component

- (1) Connect the Oscilloscope to TP203.
- (2) Play the alignment tape.
- (3) Adjust R244 so that the video signal is cancelled. (2 horizontal lines unit at the center.)

4-7 PLAYBACK Y-GAIN

Measuring instrument	Oscilloscope
Mode	Playback
Cassette	Alignment tape (VROATSV)
Test point	VIDEO OUT jack
Control	R205
Specification	1.0V \pm 0.04 Vp-p

- (1) Make sure that R217 (Step 4-8, FM CARRIER) has been correctly adjusted otherwise this adjustment may not be completed.
- (2) Connect a 75 ohm resistor to the VIDEO OUT jack and connect an oscilloscope across this resistor.
- (3) Play the color bar portion of the alignment tape and adjust R205 so that the signal amplitude is measured 1.0 Vp-p on the oscilloscope as shown in Figure 2-6.

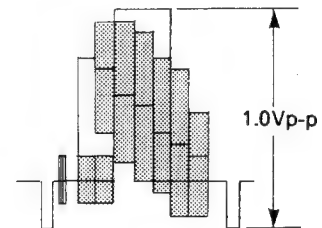


Figure 2-6

4-8 FM CARRIER FREQUENCY AND DEVIATION

Measuring instrument	Frequency counter, Oscilloscope
Mode	Record/Playback
Input signal	EIA color bar (1 Vp-p)
Test point	TP202
Controls	R217, R215
Specifications	3.40 \pm 0.05 MHz, 1.0 \pm 0.04 Vp-p

- (1) Make sure that R235 (E-E level) and R219 (Recording level) have been correctly adjusted.
- (2) Connect a 75 ohm terminating resistor to the VIDEO OUT jack and connect an oscilloscope across this resistor.
- (3) Connect a frequency counter to TP202.
- (4) Place the unit in TV mode (not in A/V input mode) and disconnect any cable from the IN FROM ANT terminal and VIDEO IN jack if connected. (No signal is fed.)
- (5) Adjust R217 so that the frequency counter reads 3.40 MHz. After this adjustment, verify that the playback Y-gain is correct since it is influenced by this adjustment. (See Step 4-7, PLAYBACK Y-GAIN adjustment)

- (6) Feed the EIA standard color bar signal to the VIDEO IN jack and adjust R215 so that the frequency counter reads 3.9 MHz.
- (7) Place the unit in A/V input mode (Select channel "00".) and feed the EIA standard color bar signal to the VIDEO IN jack. Adjust R215 so that the frequency counter reads 3.9 MHz.
- (8) Under this condition record the EIA color bar on tape, rewind and play it.
- (9) Make sure that the amplitude of the playback color bar signal recorded in Step (7) is measured 1.0 ± 0.04 Vp-p on the oscilloscope as shown in Figure 2-7. If it is out of specified value, finely adjust R215 and repeat from Step (7).

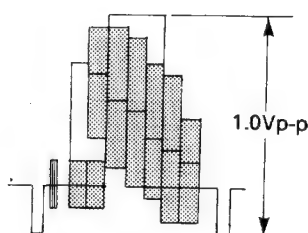


Figure 2-7

4-9 Y/C RECORD CURRENT

Measuring instrument	Oscilloscope
Mode	Record (EP mode)
Input signal	EIA color bar (1.0Vp-p)
Test point	TP301, TP302 (GND)
Control	R320, R321
Specification	30 ± 2 mVp-p (chroma) 100 ± 5 mVp-p (FM-Y)

- (1) Feed the color bar signal to the VIDEO IN jack in the A/V mode.
- (2) Connect an oscilloscope to TP301. (Use TP302 for GND.)
(For convenient connection of the oscilloscope use QCNW-6444GEZZ.)
- (3) Set the unit in EP-record mode.
- (4) Turn R321 to minimize the FM luminance signal.
- (5) Adjust R320 so that the amplitude of red portion is 30 mVp-p as shown in Figure 2-9.
- (6) Adjust R321 so that the amplitude of sync tip portion is 100 mVp-p as shown in Figure 2-10.
- (7) Remove QCNW-6444GEZZ after adjustment. (Also remove connecting probe of TP301 and TP302.)

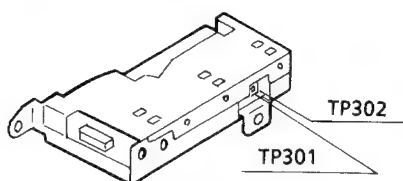


Figure 2-8

Note:

TP301, TP302, R320 and R321 are all located on the head amp module.

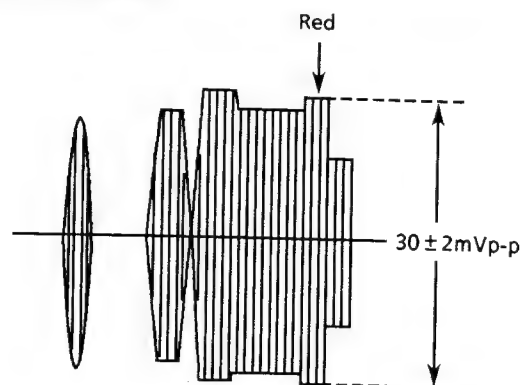


Figure 2-9

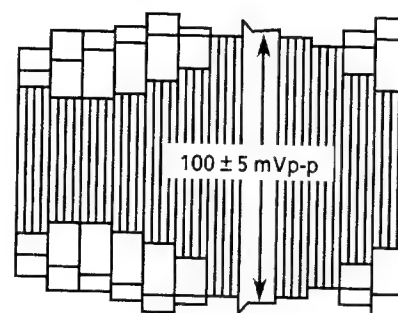


Figure 2-10

4-10 VCO FREE-RUN FREQUENCY

Measuring instrument	Voltmeter
Mode	Playback
Cassette	Alignment tape (VROATSV)
Test point	TP204
Control	FL503
Specification	2.3 ± 0.1 V DC

- (1) Connect the voltmeter to TP204.
- (2) Play back the alignment tape.
- (3) Adjust FL503 so that the voltage at TP204 is 2.3 V DC.

4-11 LINEAR AUDIO PLAYBACK GAIN

Measuring instrument	SSVM (VTVM) or Oscilloscope
Mode	Playback
Cassette	Alignment tape (VROATSV)
Test point	AUDIO OUT jack
Control	R6311 (playback level control)
Specification	-8 ± 1 dBs or $0.8 \sim 1.0$ Vp-p

- (1) Connect the SSVM (Solid State Voltmeter) or oscilloscope to the AUDIO OUT jack.
- (2) Play the alignment tape to reproduce the 1 kHz audio signal.

- (3) Adjust R6311 so that the SSVM reads -8 dBs or the signal amplitude is measured 0.87 Vp-p on the oscilloscope.

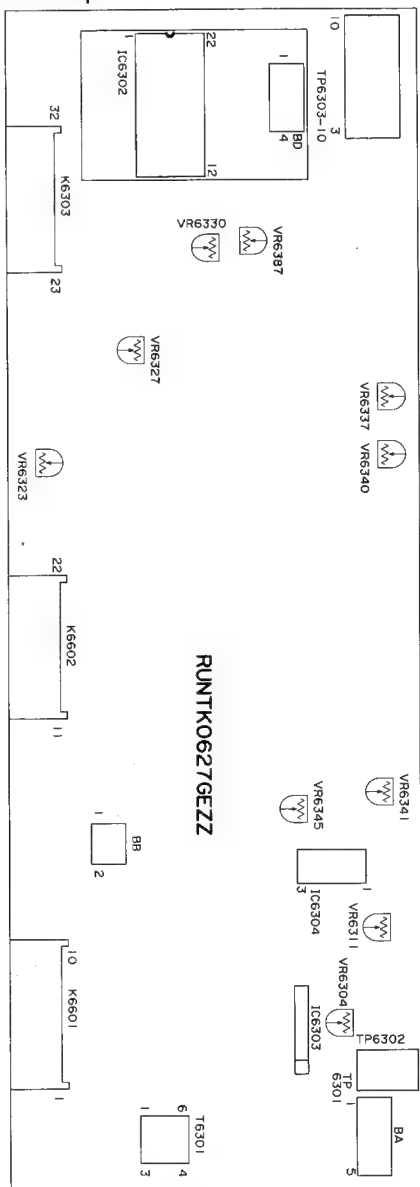


Figure 2-11

4-12 LINEAR AUDIO BIAS CURRENT

Measuring instrument	Oscilloscope
Mode	Recording
Input signal	(Not required)
Test point	TP6301(Signal), TP6302 (Ground)
Control	R6304 (Bias adj.)
Specification	$7.4 \pm 0.3\text{mVp-p}$

- (1) Connect the oscilloscope to TP6301. (Use TP6302 for ground lead.)
- (2) Set the unit in recording mode.
- (3) Adjust R6304 so that the signal amplitude is $7.4 \pm 0.3\text{mVp-p}$.
- (4) Record and play a TV program and make sure the audio is not distorted.



Figure 2-12

4-13 LINEAR AUDIO BIAS LEAK

Measuring instrument	SSVM (VTVM) or oscilloscope
Mode	Recording
Input signal	_____
Test point	AUDIO OUT jack
Adjusting point	_____
Specification	Below – 20 dBs or 220m Vp-p

- (1) Place the unit to the record mode.
- (2) Connect an SSVM (VTVM) to the AUDIO OUT jack.
- (3) Make sure the bias leak is below -20 dBs.

4-14 ERASE VOLTAGE AND OSCILLATION FREQUENCY

Measuring instrument	Oscilloscope
Mode	Record
Test point	Full erase head
Control	T6301
Specification	70 \pm 5 kHz, 40 Vp-p or greater

- (1) Place the unit to the record mode.
- (2) Connect an oscilloscope to the full erase head.
(Yellow:signal, purple:GND)
- (3) Make sure the erase voltage is approx. 40 Vp-p or greater.
- (4) Be sure that the oscillation frequency is 70 ± 5 kHz.

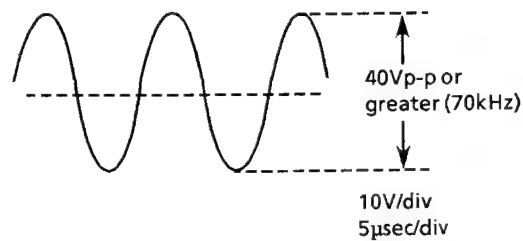


Figure 2-13

4-15 LINEAR AUDIO RECORD LEVEL CHECK

Measuring instruments	AC millivoltmeter or oscilloscope
Mode	Record/Playback
Input signal	1 kHz, -8 dBs (0.87 Vp-p)
Test point	AUDIO OUT jack
Specification	-8 ± 2 dBs (0.7~1.1 Vp-p)

- (1) Connect an AC millivoltmeter or oscilloscope to the AUDIO OUT jack.
- (2) Feed the signal shown above to the AUDIO IN jack and set the unit in A/V input mode (Select channel "00").
- (3) Record the signal on tape, rewind and play it. Press the AUDIO OUT button to select the linear audio. ("Hi-Fi" indicator in the multi-function display disappears.)
- (4) Make sure that the audio output level is as specified. If it is out of specified value, verify the playback gain (Step 4-11) and the bias current (Step 4-12).

4-16 RF AGC

Measuring instrument	DC Voltmeter or oscilloscope
Mode	E-E
Input signal	Good TV broadcast
Test point	TP1501 (Signal) TP1503 (Ground)
Control	R1601 (RF AGC)
Specification	Good TV channel reception

- (1) Receive a good TV broadcast.
- (2) Connect a DC voltmeter to TP1501.
- (3) Adjust R1601 located on the IF/MTS module so that the TV picture is not noisy and does not have a beat pattern also the sound is clear.
- (4) Receive other TV channels and make sure the picture is good as described above. (The DC voltmeter reads approx. 4 volts in case the TV signal strength is normal.)

4-17 AFT

Measuring instrument	DC Voltmeter or oscilloscope
Mode	TV reception
Input signal	Good TV broadcast
Test point	TP1502, TP1503 (GND)
Control	T1602 (AFT coil)
Specification	2.2 ± 0.1V

- (1) Have the unit receive a good TV broadcast.
- (2) Connect a DC voltmeter or oscilloscope to TP1502.

- (3) Turn the core of the AFT coil located on the IF/MTS module all the way clockwise. (The core enters innermost.)

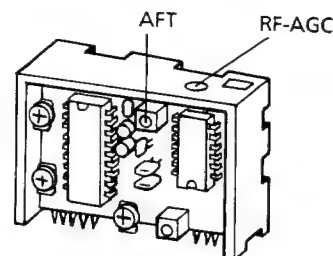


Figure 2-14 IF/MTS Module

- (4) Disconnect the antenna and change the TV channel to another then return to the channel received in above Step (1). Reconnect the antenna to the unit. (The TV picture may lose color and sound.)
- (5) Look the voltmeter (or oscilloscope) and slowly turn the core counterclockwise.
- (6) Stop the core when the meter reads 2.2 volts DC. (See Figure 2-15.)
- (7) Change the TV channel to receive other broadcasts and make sure that the TV picture on the monitor screen is always nice with a good color without beat pattern also the sound is clear. (The voltage meter will read approximately 2.2 volts DC when the unit tunes to a good broadcast.)
- (8) If the voltage reading is out of specified value, finely adjust the core and repeat step (7).

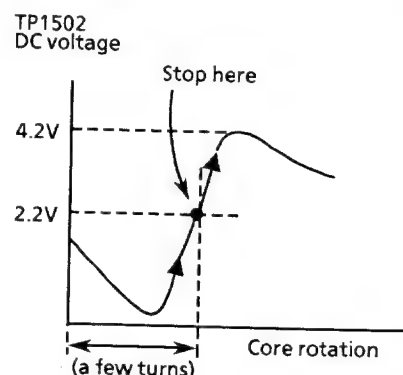


Figure 2-15

4-18 FREE-RUN FREQUENCY OF OSD AFC

Measuring instrument	Frequency counter
Mode	Blue background
Test point	TP5901
Control	R5915
Specification	15.734 ± 0.2 kHz

- (1) Connect the frequency counter to test point TP5901 located on the main PWB.
- (2) Press the ON SCREEN button on the remote control so that characters are displayed.
- (3) Apply 5V DC to TP5902 via a 1k ohm resistor. (Or have the unit receive an unoccupied TV channel.)
- (4) Adjust R5915 so that the frequency counter reads 15.734 kHz.
- (5) Remove the 1k ohm resistor (or have the unit receive an occupied channel) and make sure that the character display has no jitter or distortion when it is displayed on a TV picture (not on the blue background).

4-19 HORIZONTAL SIZE OF OSD

Measuring instrument	Oscilloscope, Monitor TV
Mode	On screen display
Test point	VIDEO OUT jack
Control	C5916
Specification	$55 \pm 1 \mu\text{sec}$

- (1) Connect the oscilloscope to the VIDEO OUT jack.
- (2) Press the ON SCREEN button on the remote control so that characters are displayed on the monitor screen.
- (3) Adjust C5916 so that the time period between the horizontal sync and the last character is $55 \pm 1 \mu\text{sec}$ as shown in Figure 2-16.
- (4) Make sure the position of the characters is not set to far left or right on the screen.

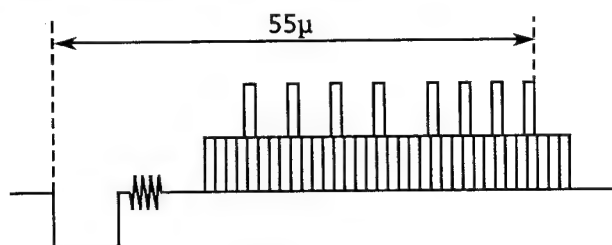


Figure 2-16.

4-20 E-E GAIN OF Hi-Fi AUDIO

Measuring instrument	AC millivoltmeter or oscilloscope
Mode	E-E (A/V input)
Input signal	1 kHz, -8 dBs (0.87 Vp-p)
Test point	AUDIO OUT jack
Controls	R6323 [R6345]
Specification	-8 \pm 1 dBs (or 0.8~1.0 Vp-p)

Note:

Terms in brackets [] are for the right channel. Controls are located on the Hi-Fi PWB.

- (1) Select channel "00" to set the unit in A/V input mode.
- (2) Feed the signal mentioned above to the left [right] channel of the AUDIO IN jack.
- (3) Connect an AC millivoltmeter (or oscilloscope) to the left [right] channel of the AUDIO OUT jack.
- (4) Adjust R6323 [R6345] so that the meter reads -8dBs (or 0.87 Vp-p).

4-21 FM CARRIER FREQUENCY OF Hi-Fi AUDIO

Measuring instrument	Frequency counter
Mode	E-E (Stop)
Input signal	(not required)
Test point	TP6307
Controls	R6330 [R6340]
Specification	1.3 [1.7] \pm 0.05MHz

Note:

Terms in brackets [] are for the right channel. Controls and test points are located on the Hi-Fi PWB.

- (1) Connect a frequency counter to pin (26) [pin (38)] of IC6301 and place the unit in stop mode.
- (2) Adjust R6330 [R6340] so that the counter reads 1.3 [1.7] MHz.

4-22 DEVIATION OF Hi-Fi AUDIO

(Using a spectrum analyzer)

Measuring instrument	Spectrum Analyzer
Mode	E-E (A/V input)
Input signal	1 kHz, -8 dBs
Test point	TP6307
Controls	R6327 [R6341]
Specification	50 \pm 5 kHz

Note:

Terms in brackets [] are for the right channel.

- (1) Select channel "00" to place the unit in A/V input mode and feed the audio signal shown above to the AUDIO IN jack.
- (2) Connect a spectrum analyzer to test point TP6307. (Use the shield case near by the test point for ground lead.)
- (3) Adjust R6327 [R6341] so that the spectrum is as shown in Figure 2-17.

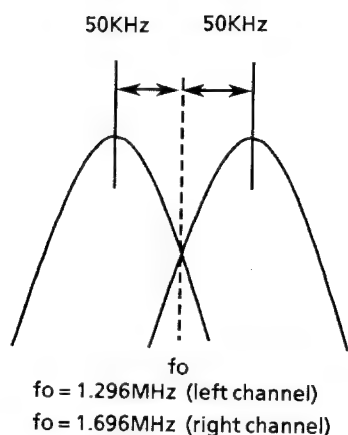


Figure 2-17

4-23 DEVIATION OF Hi-Fi AUDIO (Using an AC millivoltmeter)

Measuring instrument	AC millivoltmeter or oscilloscope
Mode	Record/Playback
Cassette	Test tape (VROATFPS)
Input signal	1 kHz, -8 dBs (1.23 Vp-p)
Test point	AUDIO OUT jack
Controls	R6327 [R6341]
Specification	-8 dBs \pm 3 dB (0.9~1.7 Vp-p)

- (1) Make sure that R6330 and R6340 (Carrier frequency, Step 4-21) have been correctly adjusted.
- (2) Connect an AC millivoltmeter (or oscilloscope) to the AUDIO OUT jacks.
- (3) Play the test tape and make sure that the audio output level is measured -8 dBs (0.8~1.0 Vp-p).
- (4) Place the unit in A/V input mode (Select channel "00".) and feed the audio signal as shown above to the AUDIO IN jacks.
- (5) Under this condition record the audio signal on tape, rewind and play it.
- (6) Make sure that the playback audio signal recorded in above step is measured as specified. If it is out of specified value, adjust R6327 [R6341] and repeat from Step (5).
- (7) Record and play a TV broadcast and make sure the sound is good.

4-24 BPF FREQUENCY OF Hi-Fi AUDIO (Using a spectrum analyzer)

Measuring instrument	Spectrum analyzer
Mode	Playback
Input signal	Tracking signal of spectrum analyzer
Test point	TP6309
Control	R6337
Specification	1.51 \pm 0.05 MHz

- (1) Disconnect the wire harness from connector BD located on the Hi-Fi PWB.
- (2) Connect a spectrum analyzer to test point TP6309. (Use the shield case located near by for ground.)
- (3) Feed the tracking signal of the spectrum analyzer to pins (4) and (9) of IC6302.
- (4) Feed an external square wave pulse (5Vp-p) to TP6308. (This pulse switches the output of the playback amplifiers in IC6302 as shown below.)

TP6308	TP6309
5V	Left channel (1.3 MHz)
0V	Right channel (1.7 MHz)

- (5) Adjust R6337 so that the spectrum is as shown in Figure 2-18. (2 spectrums overlap at 1.51 MHz.).

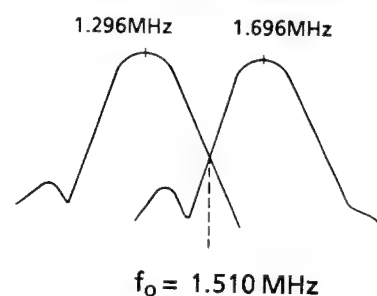


Figure 2-18

4-25 BPF FREQUENCY OF Hi-Fi AUDIO (Without a spectrum analyzer)

Measuring instrument	Oscilloscope
Mode	Playback
Input signal	Audio: 1kHz, +10dBs Video: None
Cassette	Test tape (VROATFPS)
Test point	TP6309
Control	R6337

Note:

It is not recommended to adjust R6337 without a spectrum analyzer. However if this adjustment is needed without a spectrum analyzer, follow the procedure below as rough adjustment.

- (1) Under the above input conditions, make self-recording/playback in the SP mode. (The audio EE and PB output waveforms are clipped at their peaks and troughs. This is no problem because an excessive input as high as +10 dBs is applied as specified.)
- (2) While in playback, turn R6337 clockwise to check with your ears or on the oscilloscope screen to see if the left-channel audio output gets more distortion and noises.
- (3) Now turn R6337 counterclockwise until the above distortion and noises disappear. Mark the position at this time of R6337.

- (4) Turn R6337 further counterclockwise and make sure, with your ears or on the oscilloscope screen, that the right-channel audio output gets more distortion and noises.
 - (5) Now turn R6337 clockwise until the above distortion and noises disappear. Mark the position at this time of R6337.
 - (6) Adjust R6337 to the middle position between the two points marked in Steps 3) and 5).
 - (7) Finally play back a test tape or the like and make sure there is no problem.,.
- * Shown below are the band-pass filter characteristics at the points.

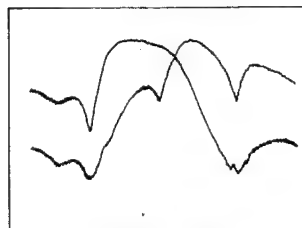


Figure 2-19

Adjustment with left-channel output
Adjusting point: 1.590 MHz
(1.510 MHz + 0.08 MHz)

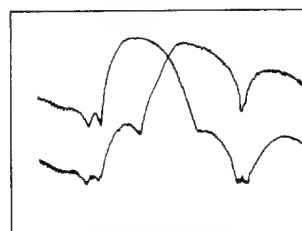


Figure 2-20

Adjustment with right-channel output
Adjusting point: 1.466 MHz
(1.510 MHz - 0.044 MHz)

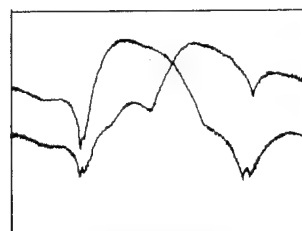


Figure 2-21

To be set to middle position between the above two marked points.
Adjusting point: 1.504 MHz
(1.510 MHz - 0.006 MHz)

4-26 DROPOUT LEVEL OF Hi-Fi AUDIO

Measuring instrument	DC voltmeter
Mode	Playback
Cassette	Test tape (VROATFPS)
Test point	TP6306
Control	R6387
Specification	2.3 ± 0.05 V DC

- (1) Connect a DC voltmeter to test point TP6306 and play the Hi-Fi test tape.
- (2) Adjust R6387 so that the DC voltmeter reads 2.3 V.

4-27 CHECKING OF Hi-Fi AUDIO HSP

Measuring instrument	Oscilloscope
Mode	Playback
Cassette	Test tape (VROATFPS)
Test point	TP6304, TP6306
Specification	More than 100μsec

- (1) Connect a dual trace oscilloscope with delayed sweep to test points TP6304 (A.HSP) and TP6306.
- (2) Play the Hi-Fi test tape.
- (3) Using delayed sweep, observe the waveform around the timing of leading edge and trailing edge of the audio head switching pulse.
- (4) Make sure that the envelope on TP6306 is at least 100μsec wider than the audio head switching pulse at both edges as shown in Figure 2-22. If it is out of specified value, verify the HEAD SWITCHING POINT adjustment (Step 4-1) and the A/C HEAD POSITION adjustment (Step 3-8).

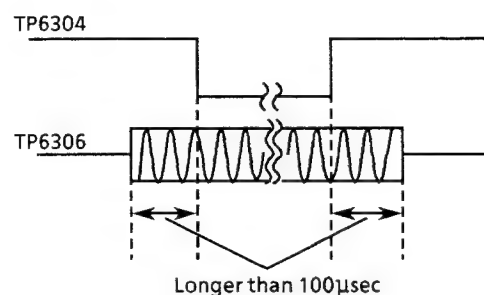


Figure 2-22

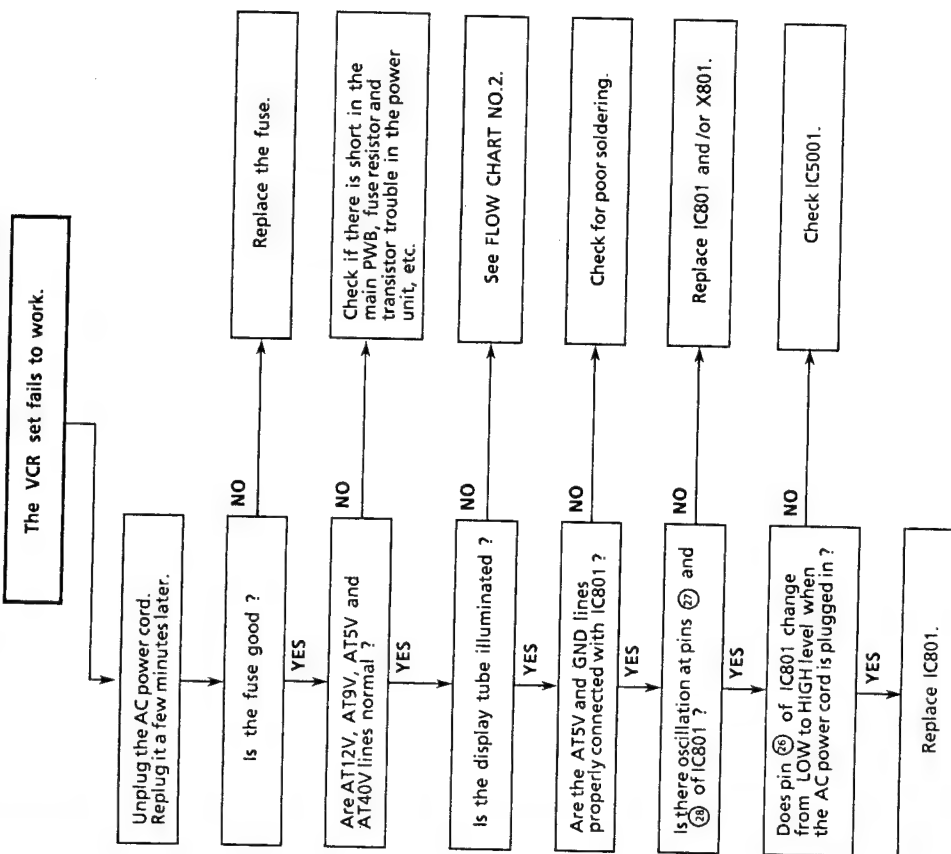
4-28 LEVEL METER

Mode	E-E
Input signal	1 kHz, -8 dBs (0.87 Vp-p)
Test point	Level meter
Controls	R5011, R5010
Specification	0 dB

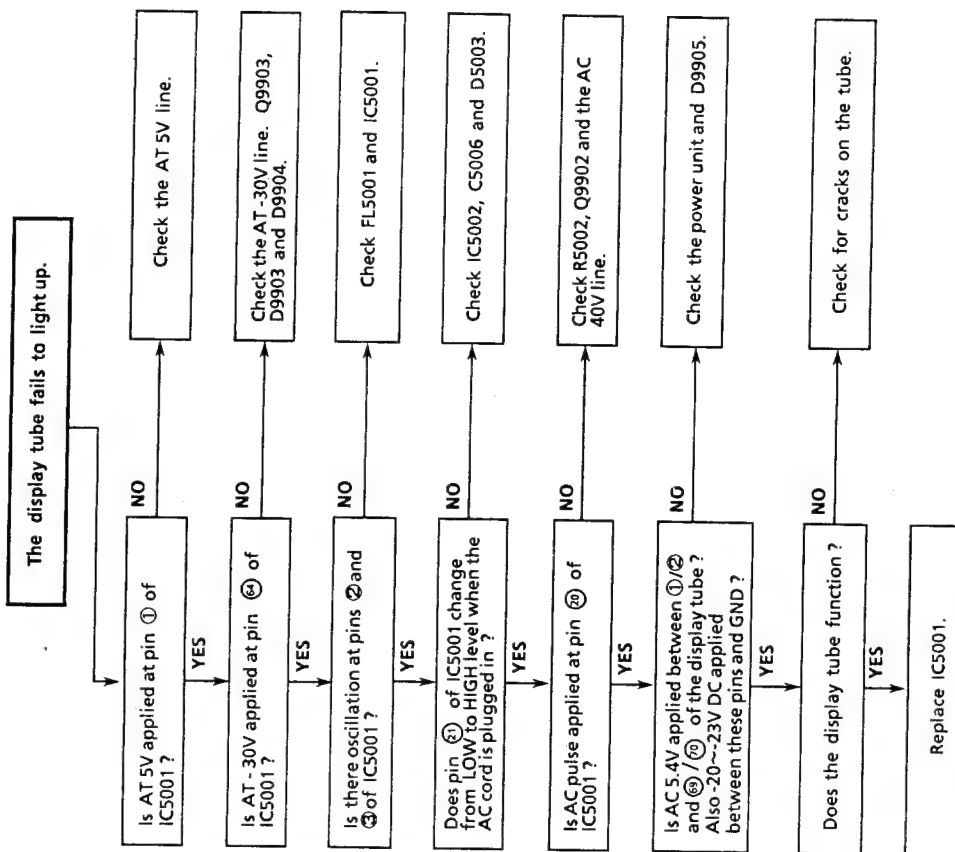
- (1) Select channel "00" to set the unit in A/V input mode and feed the audio signal shown above to the left channel of AUDIO IN jack.
- (2) Press the AUDIO OUT button to set the audio output mode in stereo. (Both "L" and "R" light up in the Multi-function display.)
- (3) Adjust R5011 so that the left channel of the level meter shows 0 dB.
- (4) Change the channel to receive a monaural broadcast. Adjust R5010 so that both channel of the level meter show the same.

5. TROUBLESHOOTING

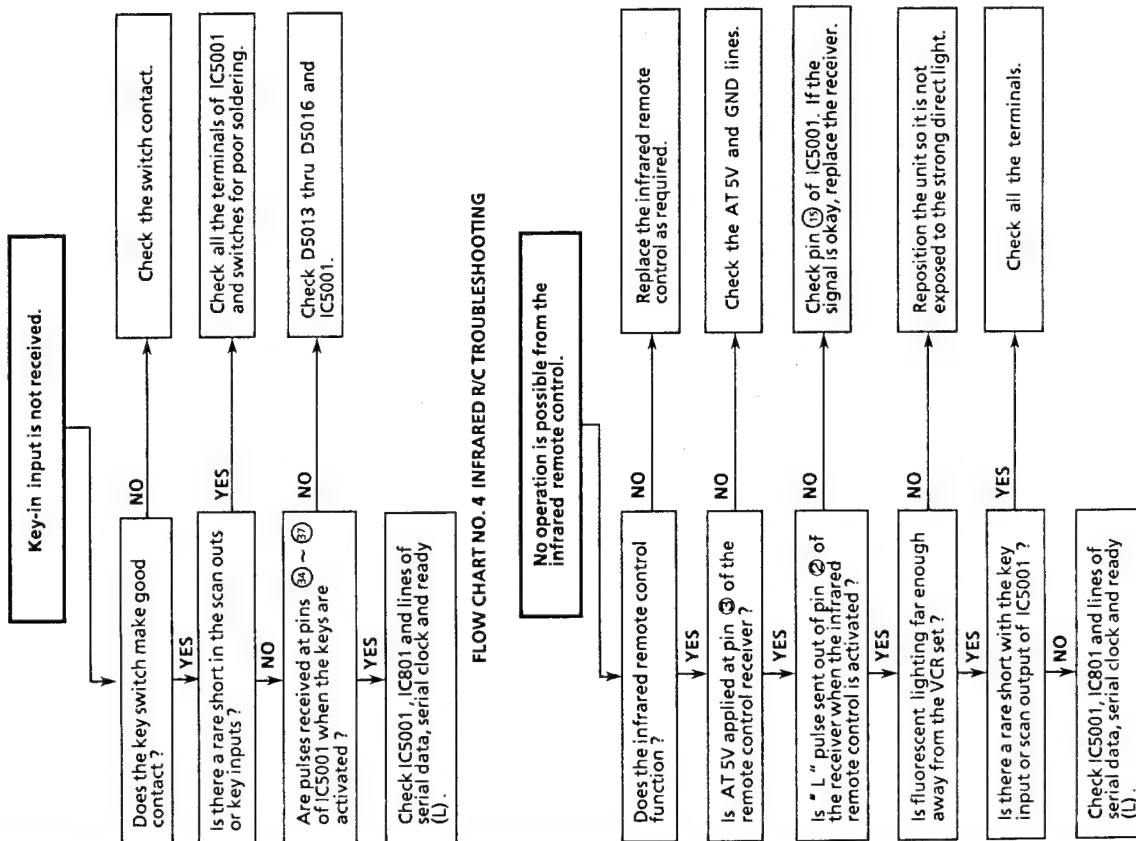
FLOW CHART NO.1 POWER TROUBLESHOOTING



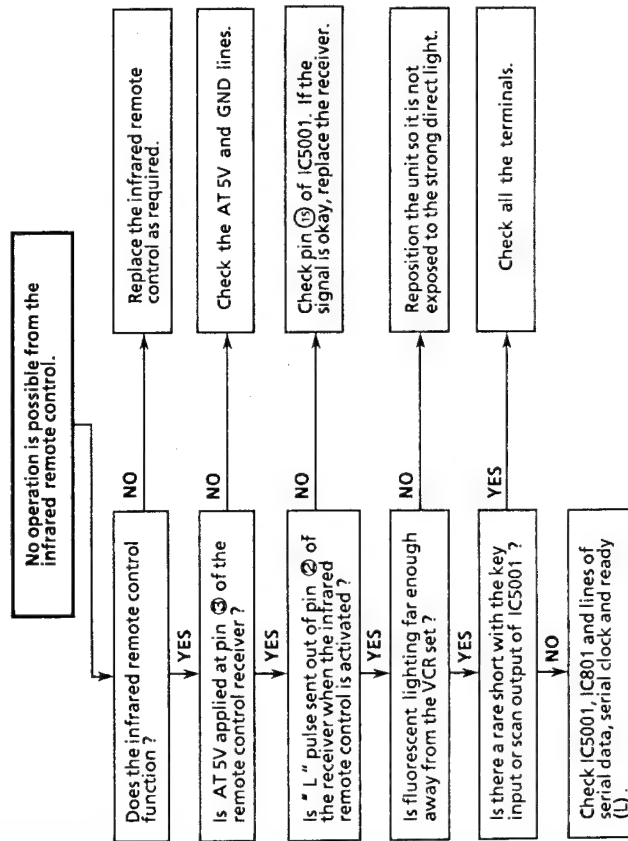
FLOW CHART NO.2 TIMER (1) TROUBLESHOOTING



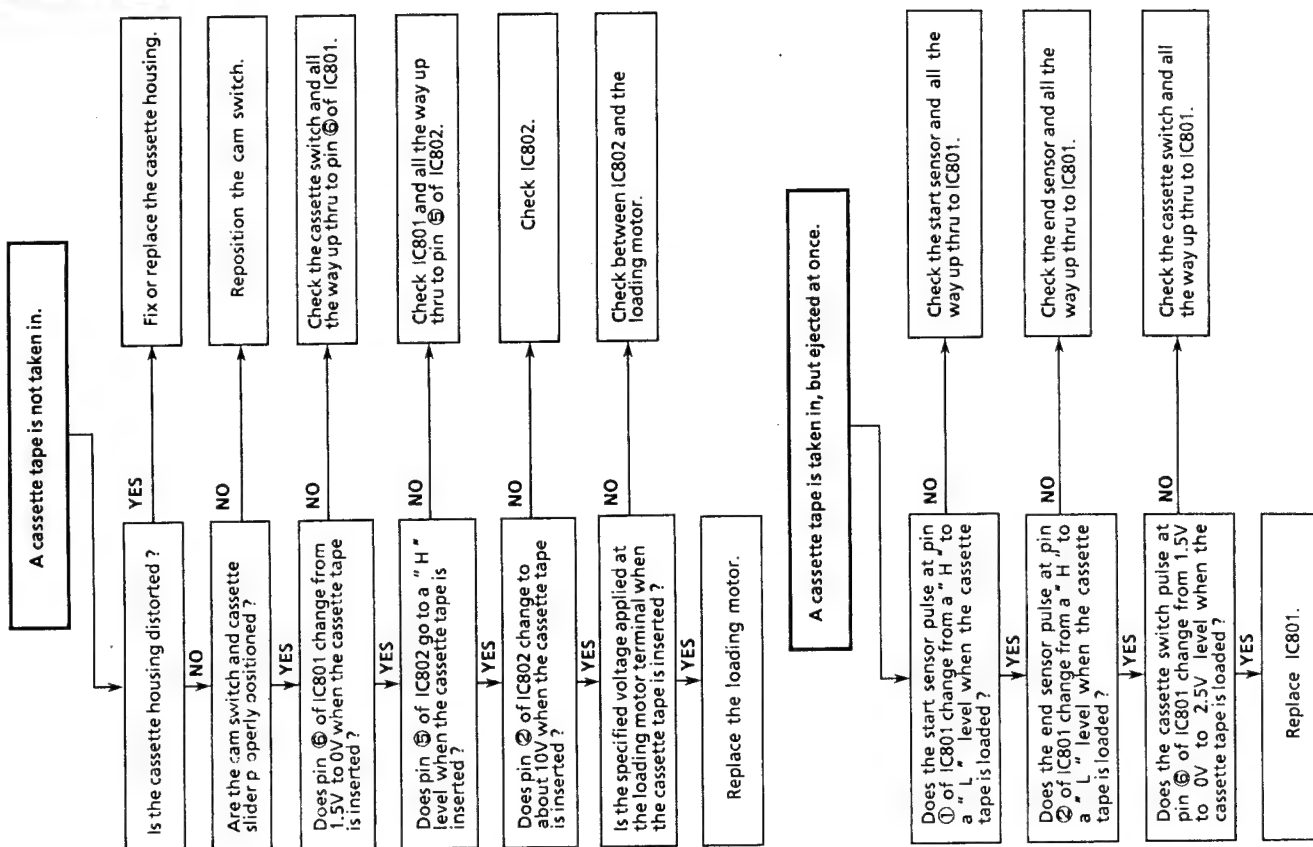
FLOW CHART NO. 3 TIMER (2) TROUBLESHOOTING



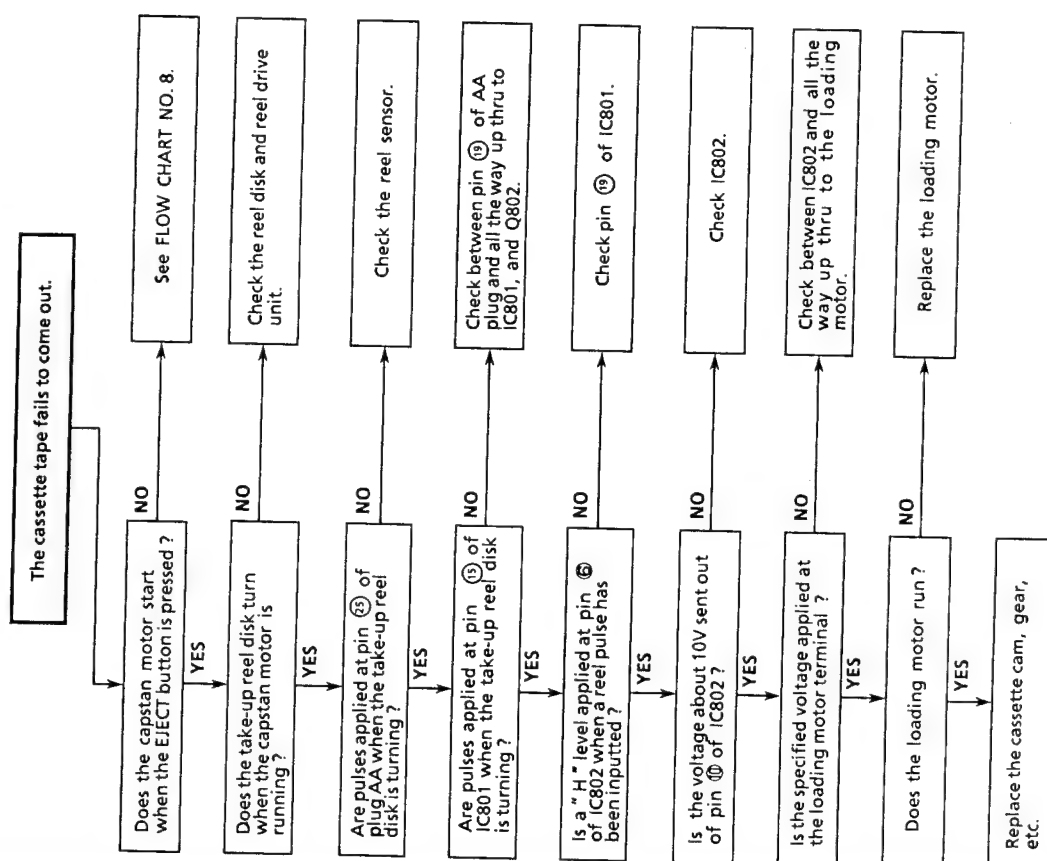
FLOW CHART NO. 4 INFRARED R/C TROUBLESHOOTING



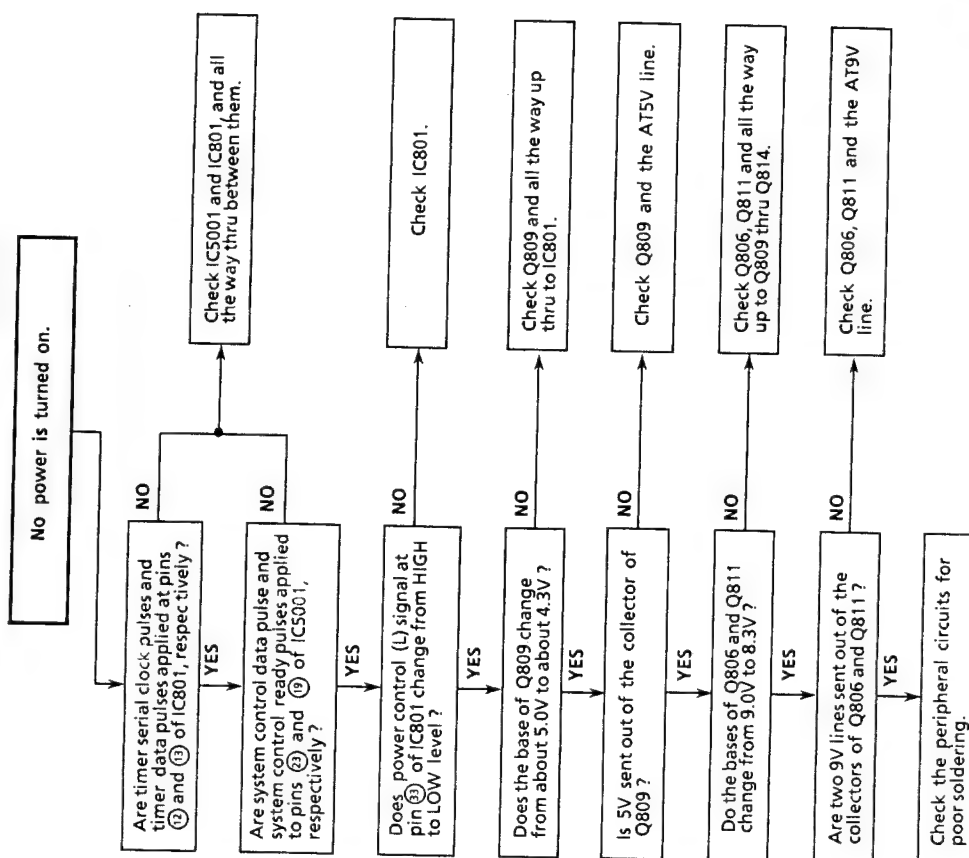
FLOW CHART NO. 5 CASSETTE CONTROL TROUBLESHOOTING



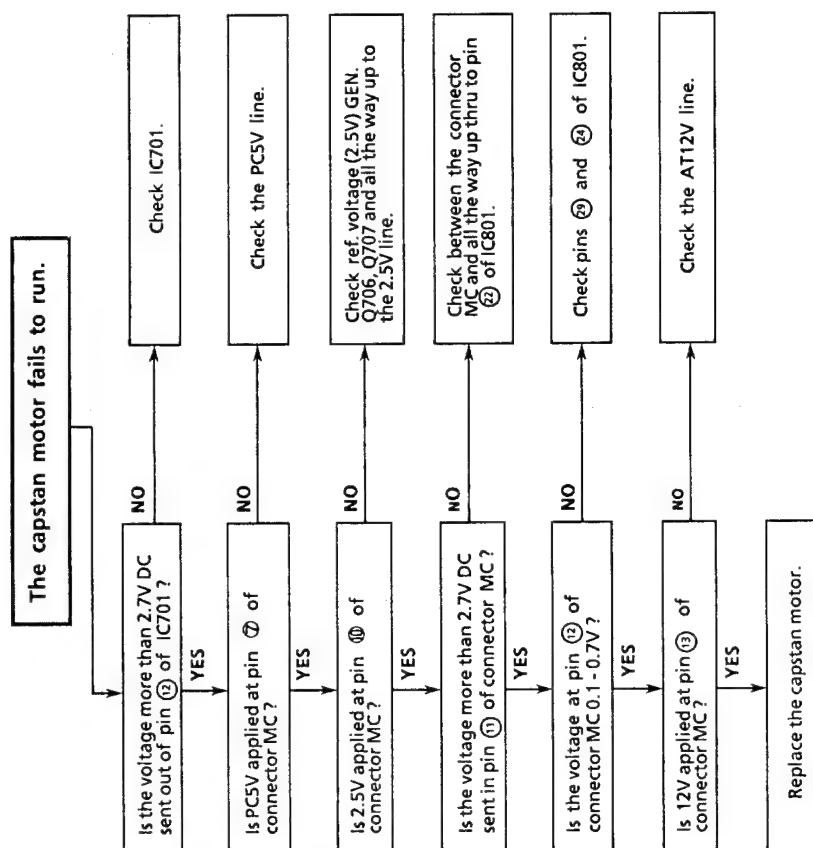
FLOW CHART NO. 6 LOADING MOTOR AND EJECT TROUBLESHOOTING



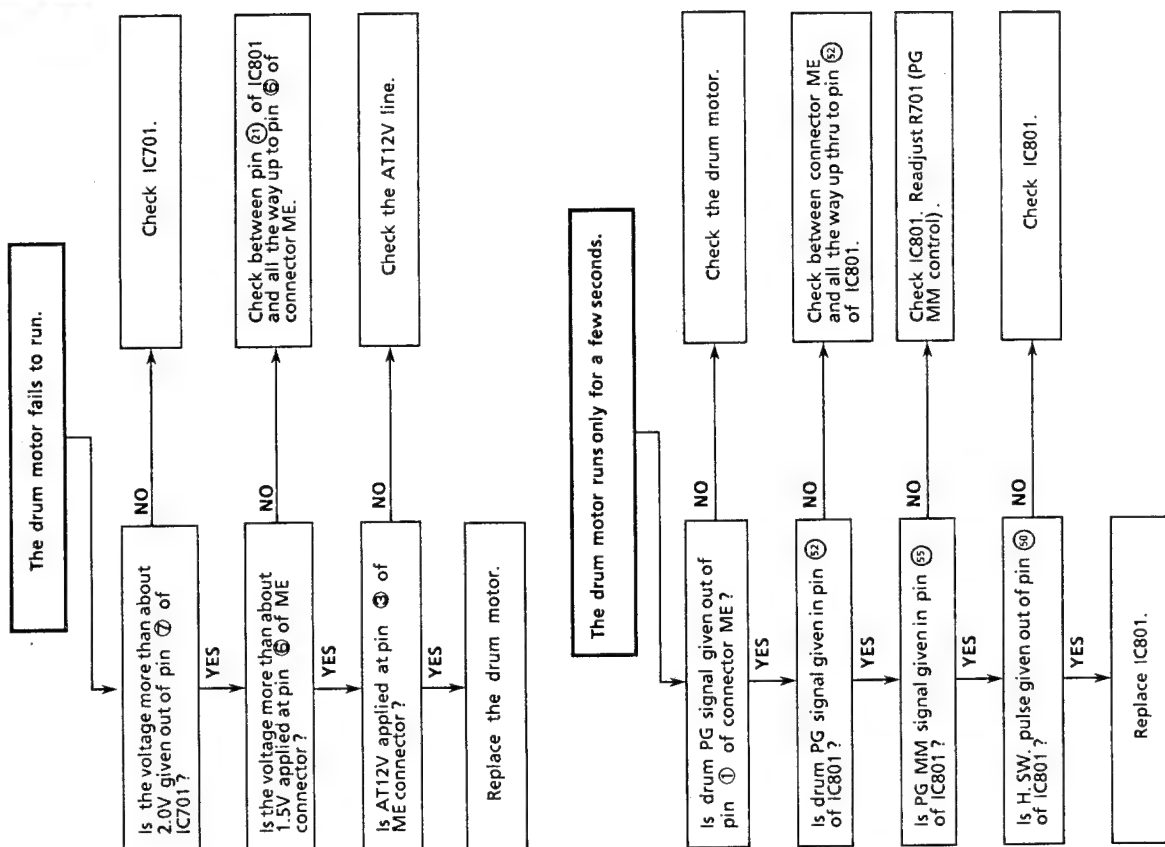
FLOW CHART NO. 7 SYSTEM CONTROL TROUBLESHOOTING



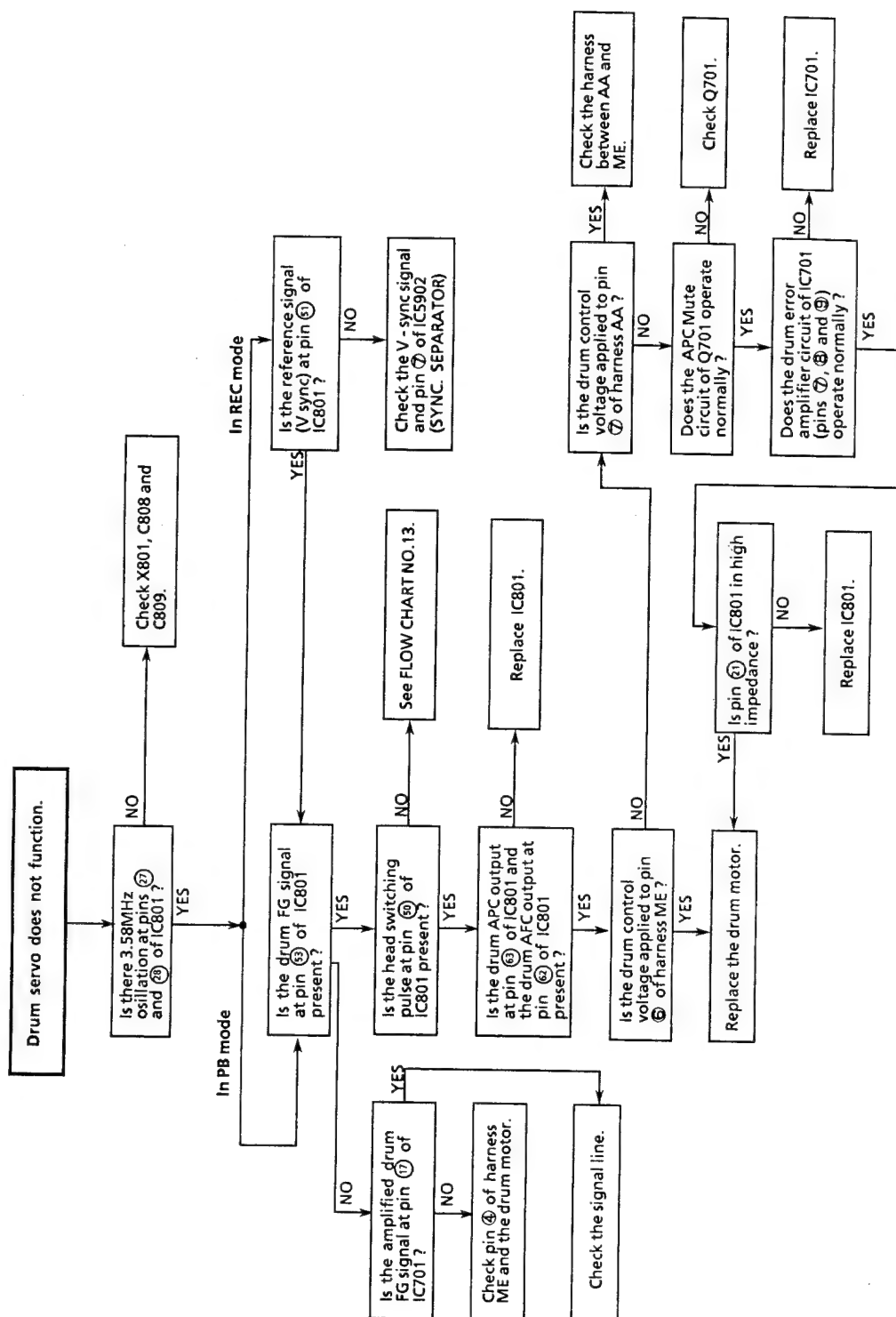
FLOW CHART NO. 8 CAPSTAN MOTOR TROUBLESHOOTING



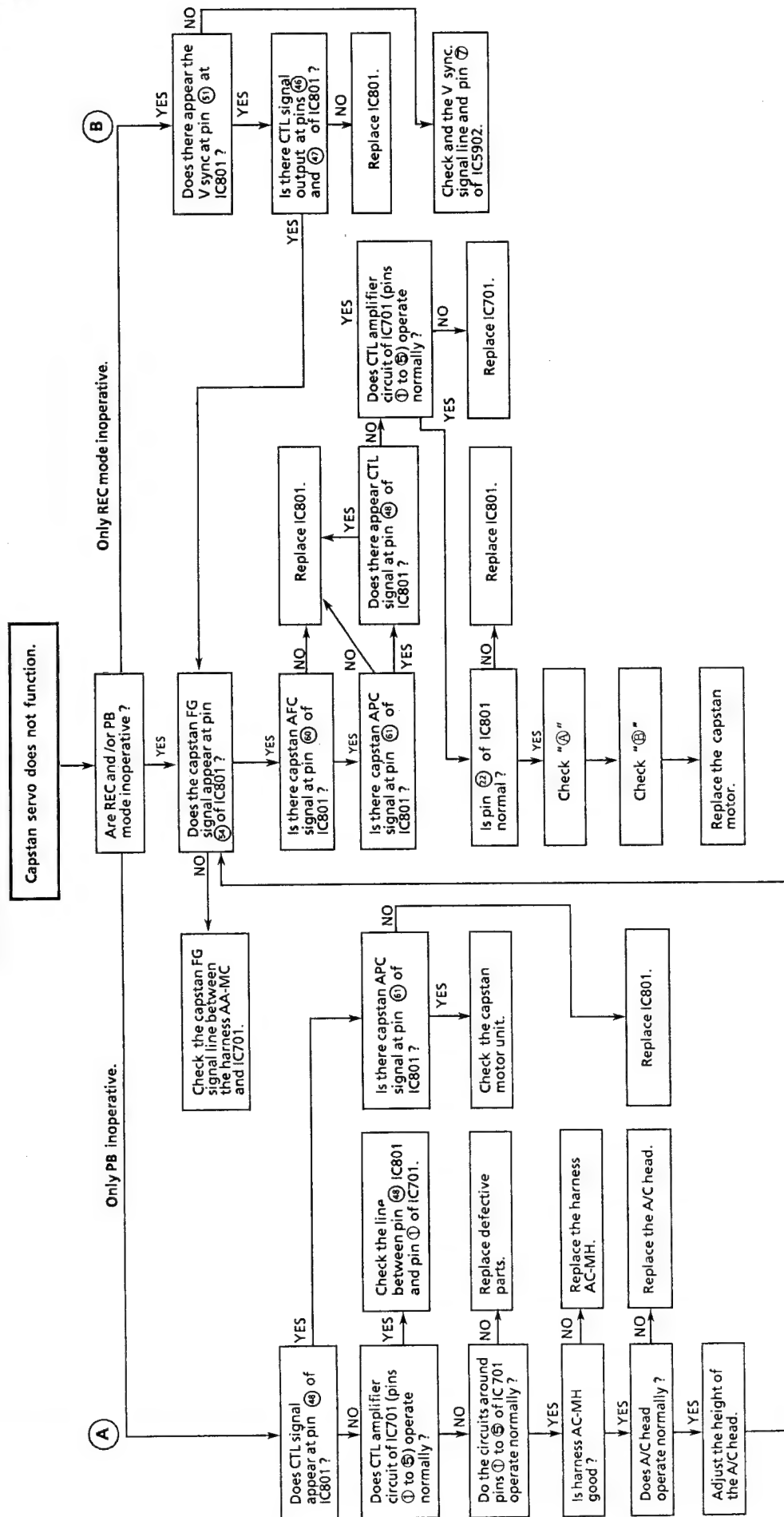
FLOW CHART NO. 9 DRUM MOTOR TROUBLESHOOTING



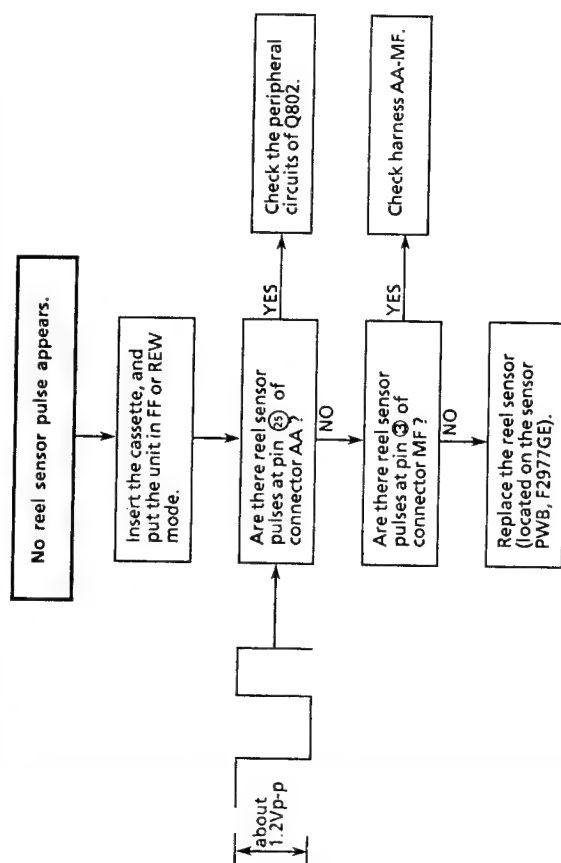
FLOW CHART NO. 10 DRUM SERVO TROUBLESHOOTING



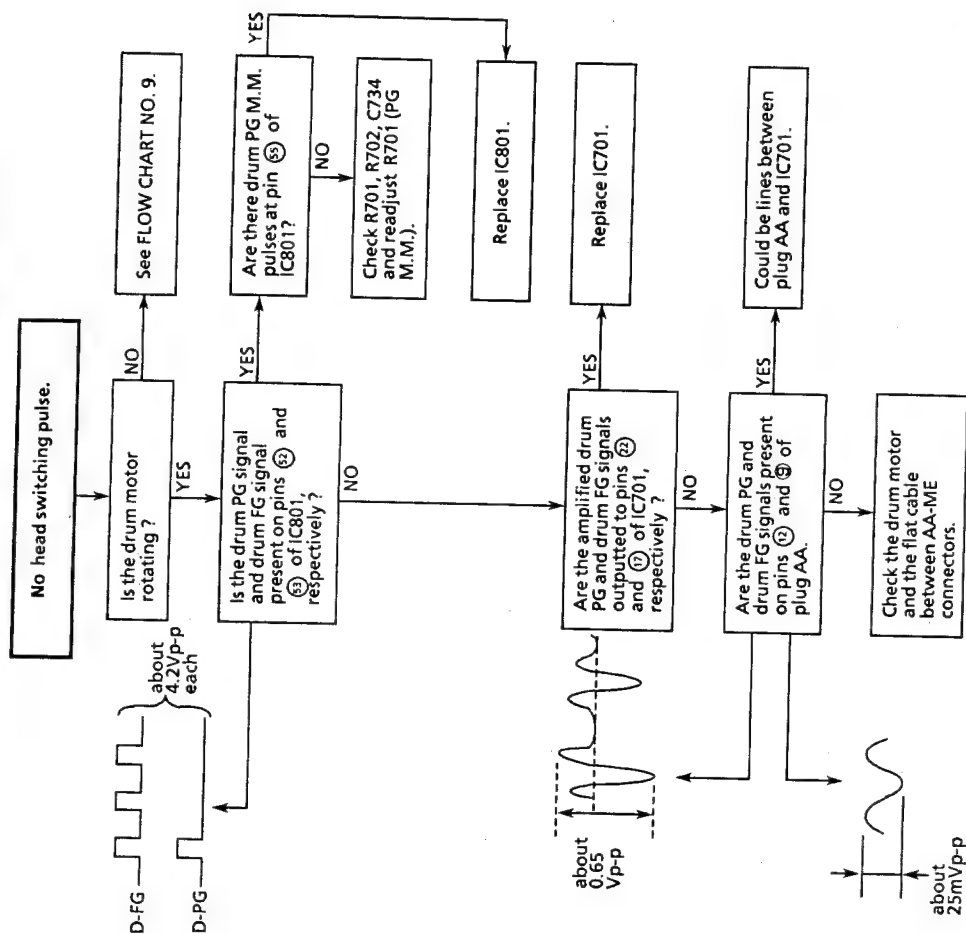
FLOW CHART NO.11 CAPSTAN SERVO TROUBLESHOOTING



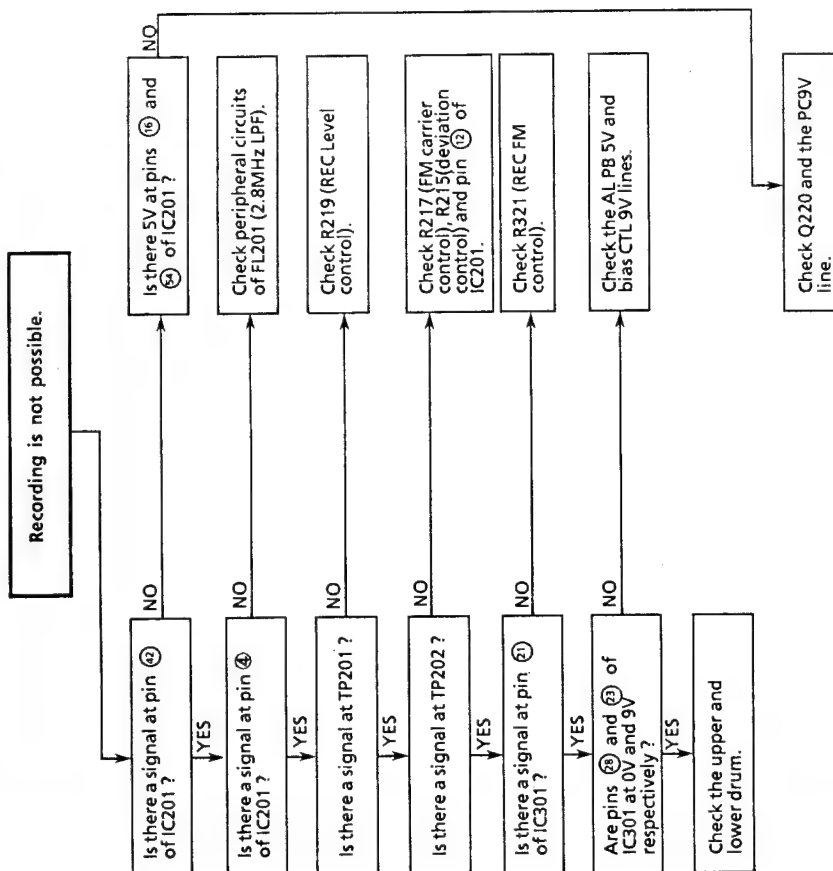
FLOW CHART NO. 12 TAKE-UP REEL PULSE GENERATOR TROUBLESHOOTING



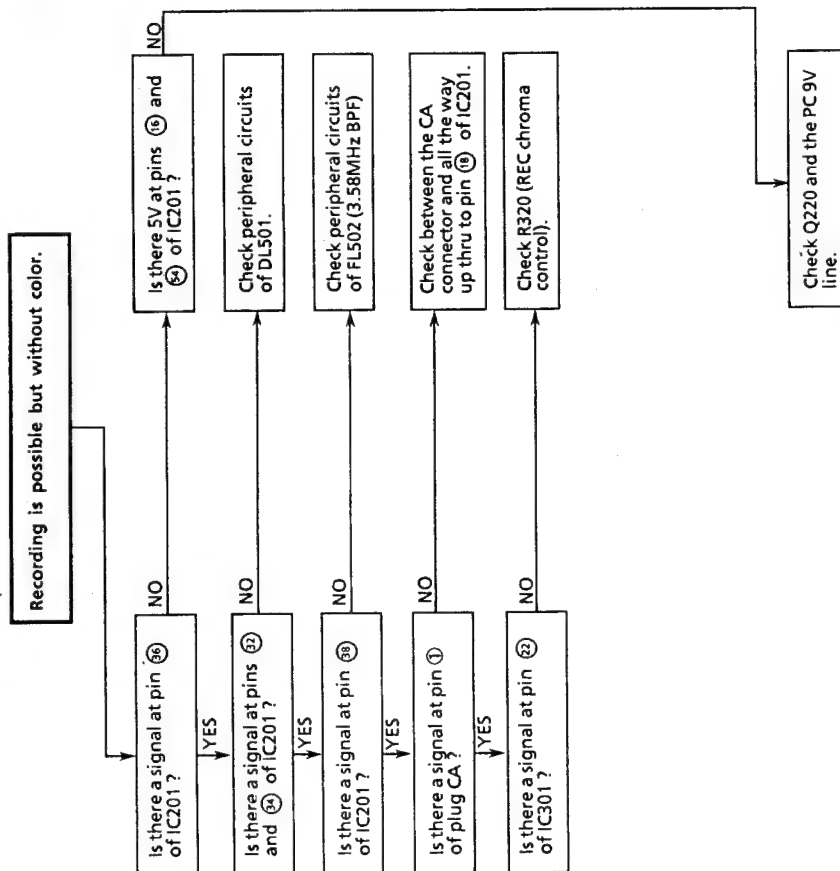
FLOW CHART NO. 13 HEAD SWITCHING PULSE TROUBLESHOOTING



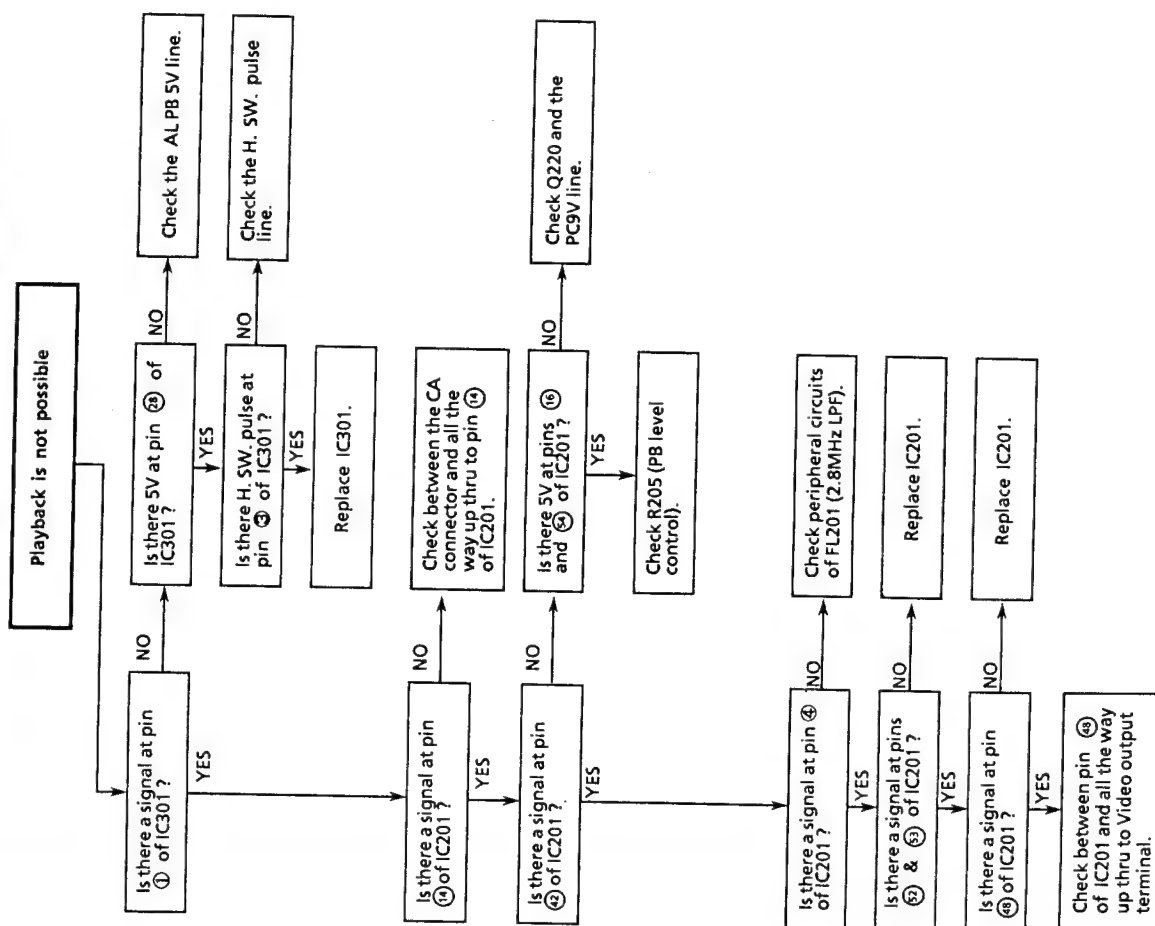
FLOW CHART NO. 14 RECORDING MODE (LUMINANCE) TROUBLESHOOTING



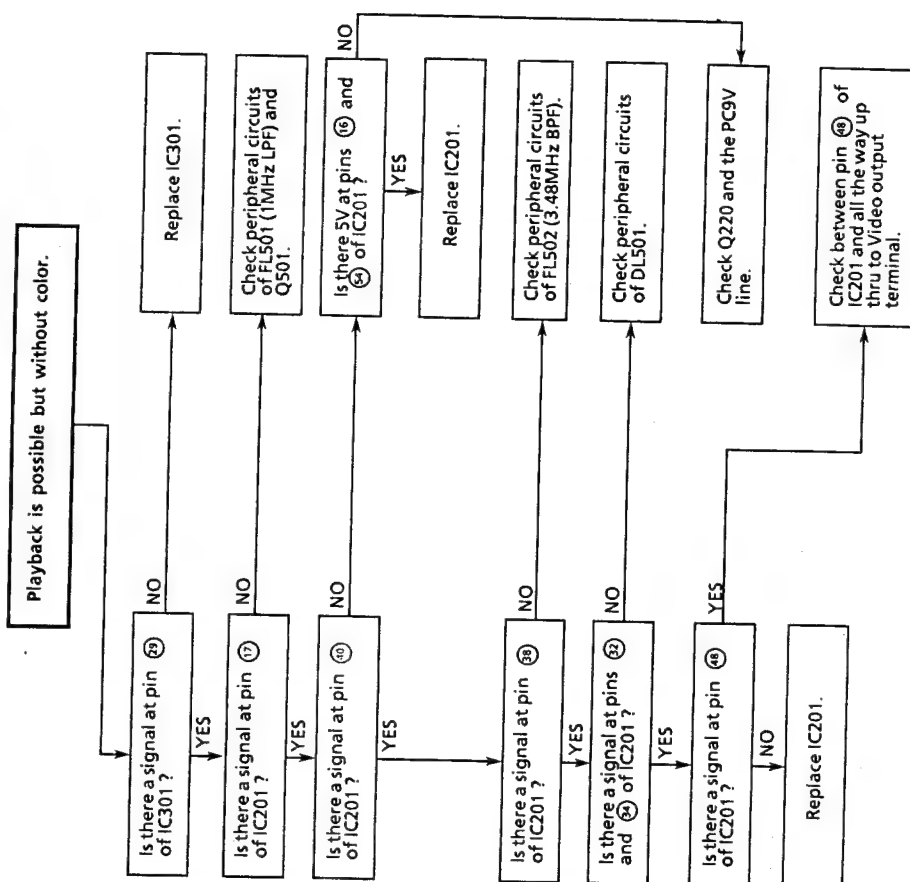
FLOW CHART NO. 15 RECORDING MODE (CHROMA) TROUBLESHOOTING



FLOW CHART NO. 16 PLAYBACK MODE (LUMINANCE) TROUBLESHOOTING

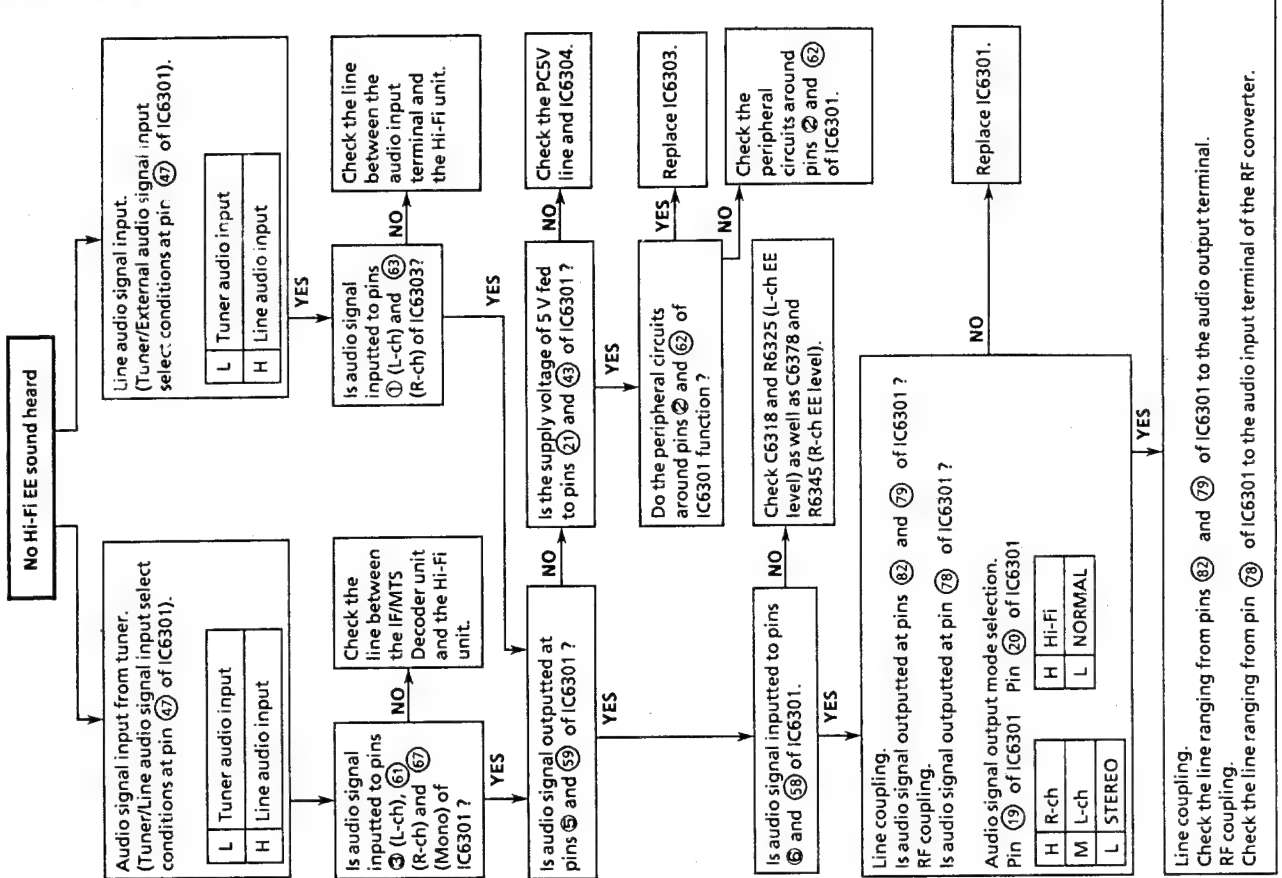


FLOW CHART NO. 17 PLAYBACK MODE (CHROMA) TROUBLESHOOTING



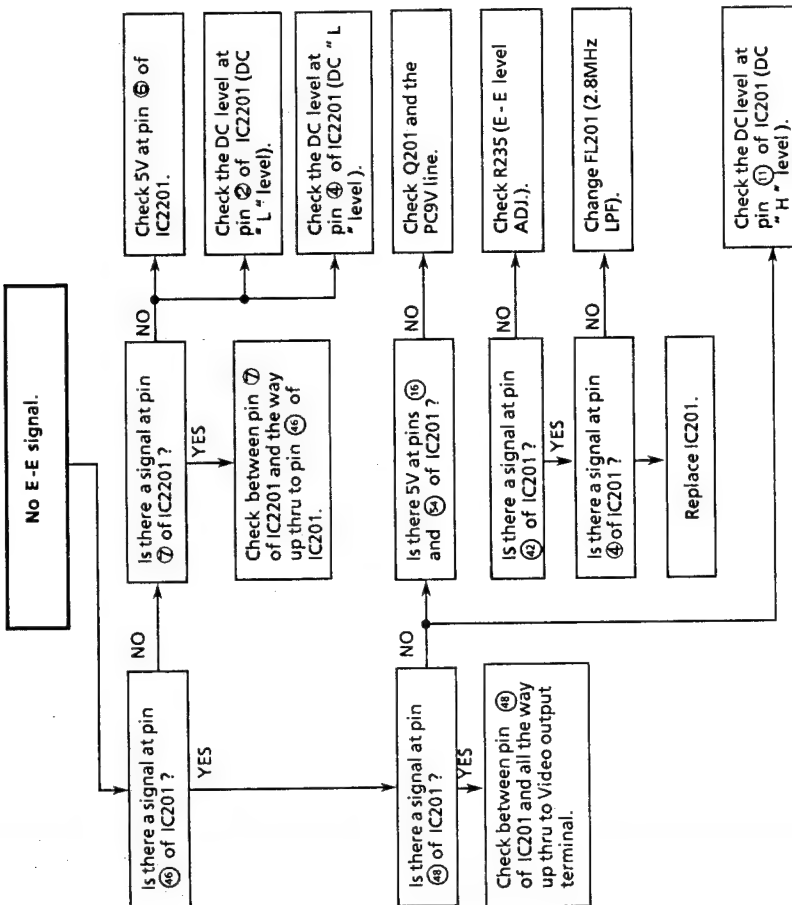
FLOW CHART NO. 19

HI-FI TROUBLESHOOTING (1)



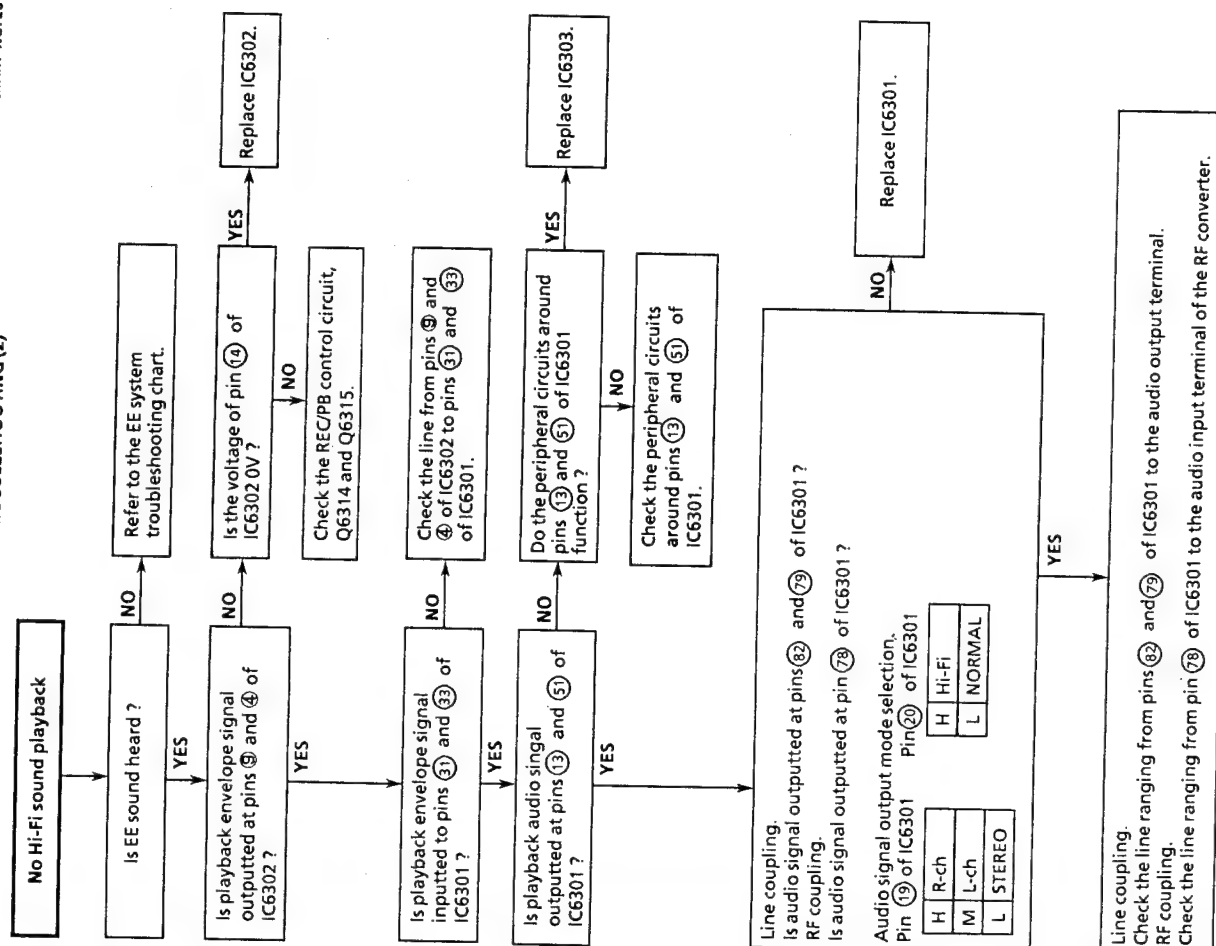
FLOW CHART NO. 18

E-E MODE TROUBLESHOOTING



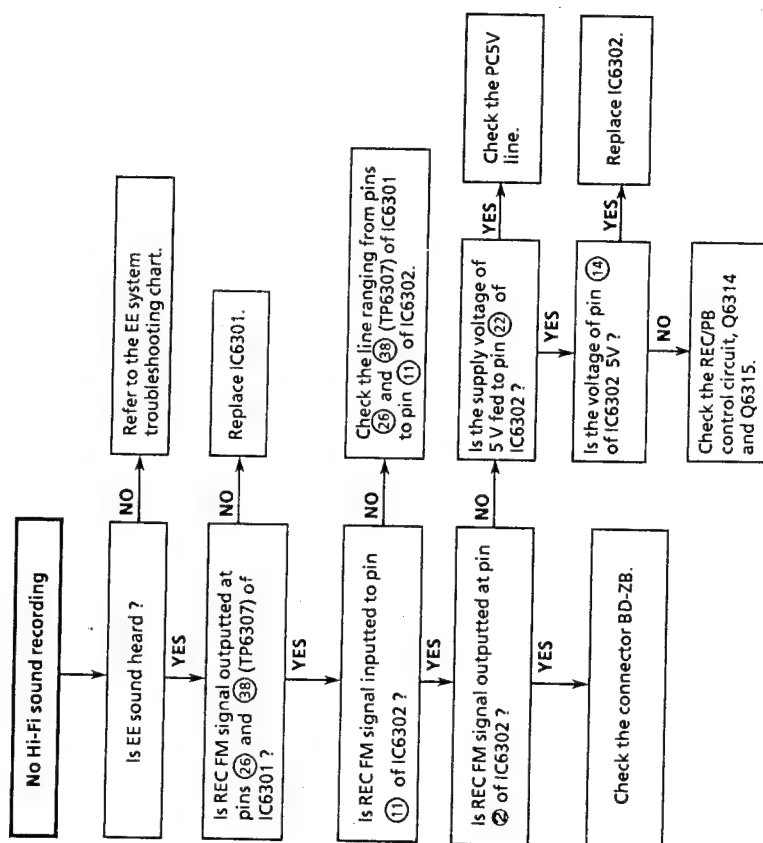
Hi-Fi TROUBLESHOOTING (2)

FLOW CHART NO. 20




Hi-Fi TROUBLESHOOTING (3)

FLOW CHART NO. 21





SCHEMATIC DIAGRAM

IMPORTANT SAFETY NOTICE:

PARTS MARKED WITH "  " () ARE IMPORTANT FOR MAINTAINING THE SAFETY OF THE SET.

BE SURE TO REPLACE THESE PARTS WITH SPECIFIED ONES FOR MAINTAINING THE SAFETY AND PERFORMANCE OF THE SET.

AVIS DE SECURITE IMPORTANT:

LES PIECES MARQUEES "  " () SONT IMPORTANTES POUR MAINTENIR LA SECURITE DE L'APPAREIL.

NE REMPLACER CES PIECES QUE PAR DES PIECES DONT LE NUMERO EST SPECIFIE POUR MAINTENIR LA SECURITE ET PROTEGER LE BON FONCTIONNEMENT DE L'APPAREIL.

- The indicated voltages in the following diagram are measured with an SSVM, upon receiving color bars (400 Hz sound signal) in either the record mode or the play mode voltage is indicated as follows.

4.0 ... Record mode (SP)

(4.0) ... PB mode (SP)

4.0 ... LP mode

4.0 ... EP mode

NOTE:

1. The unit of resistance "ohm" is omitted (K : 1000 ohms M : 1 Meg ohm)
2. All resistors are 1 / 8 watt. unless otherwise noted.
3. All capacitors μF , unless otherwise noted P : $\mu\mu F$.

Voltages and waveform are measured as follows:

- DC voltages are measured with an SSVM placed between points indicated and chassis ground, with the supply voltage of 120V AC and all controls for normal positions.

This circuit diagram is a standard one, actual circuits printed may be subject to change for product improvement without prior notice.

SIGNAL FLOW SYMBOLS AT A GLANCE

MAIN (1) CIRCUIT

 Drum Error Voltage Drum Frequency Comparison Signal Drum Phase Comparison Signal Capstan Error Voltage Capstan Frequency Comparison Signal Playback Control Comparison Signal

MAIN (2) CIRCUIT

 Recording Luminance Signal Playback Luminance Signal Recording Chrominance Signal Playback Chrominance Signal Audio Playback Signal Audio Recording Signal E-E Signal (Video/Audio)

Y/C CIRCUIT

 Playback Luminance Signal Playback Chrominance Signal E-E Signal (Video/Audio) Recording Luminance Signal Recording Chrominance Signal

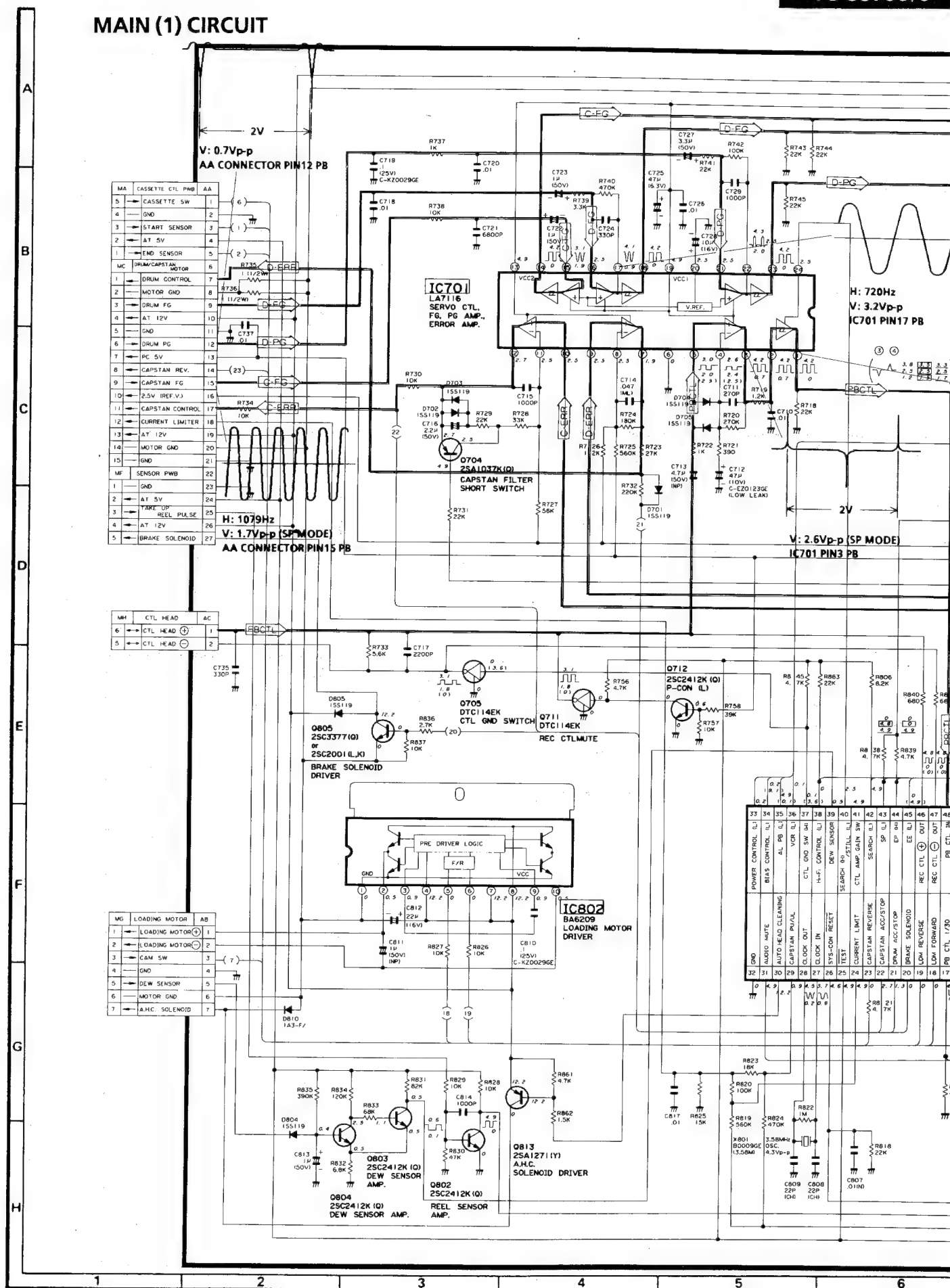
HEAD AMP CIRCUIT

 Playback Luminance Signal Playback Chrominance Signal Recording Luminance Signal Recording Chrominance Signal

Hi-Fi CIRCUIT

 Audio Playback Signal Audio Recording Signal E-E Signal (Audio)

MAIN (1) CIRCUIT



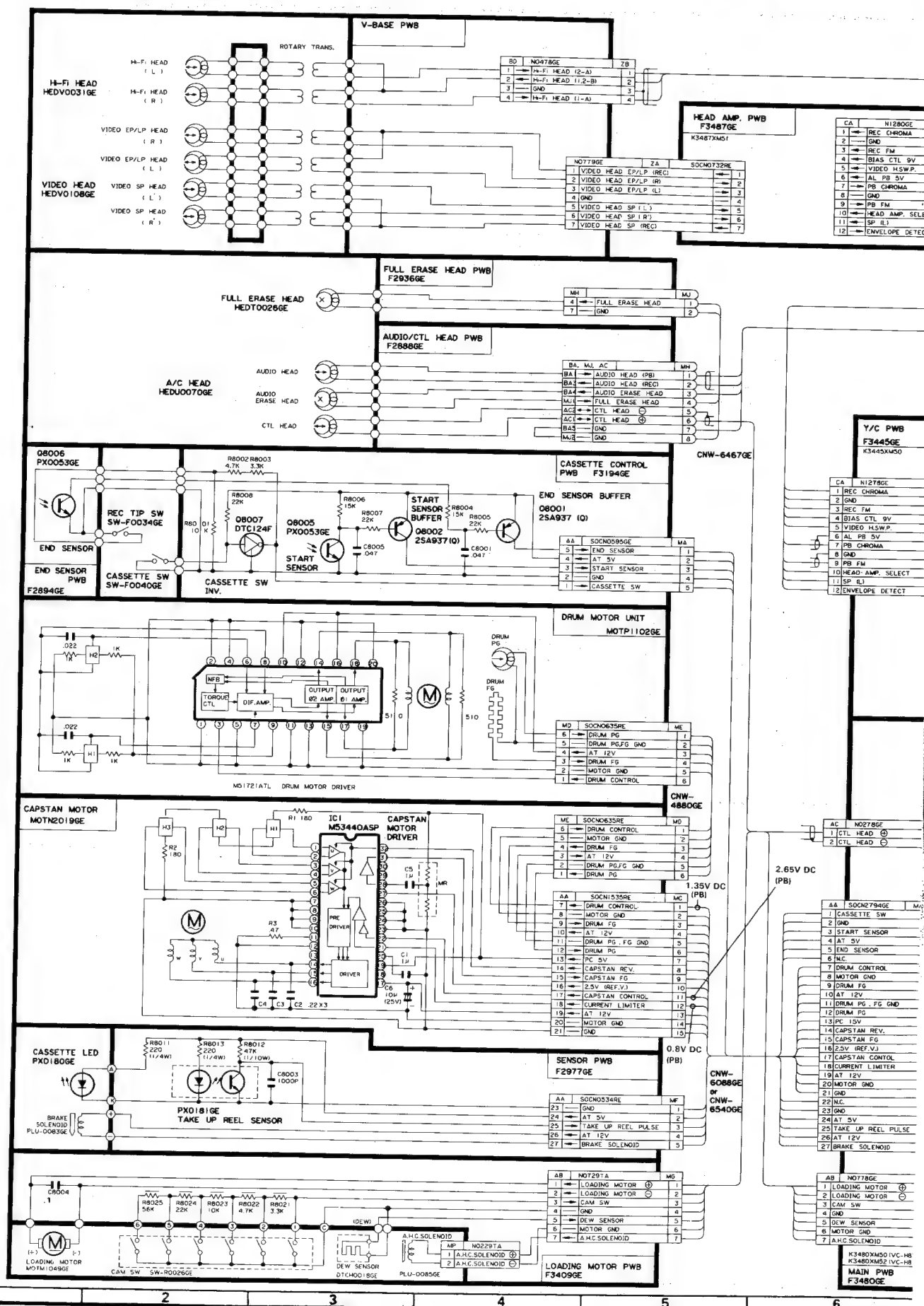
* VOLTAGE MEASUREMENT MODE

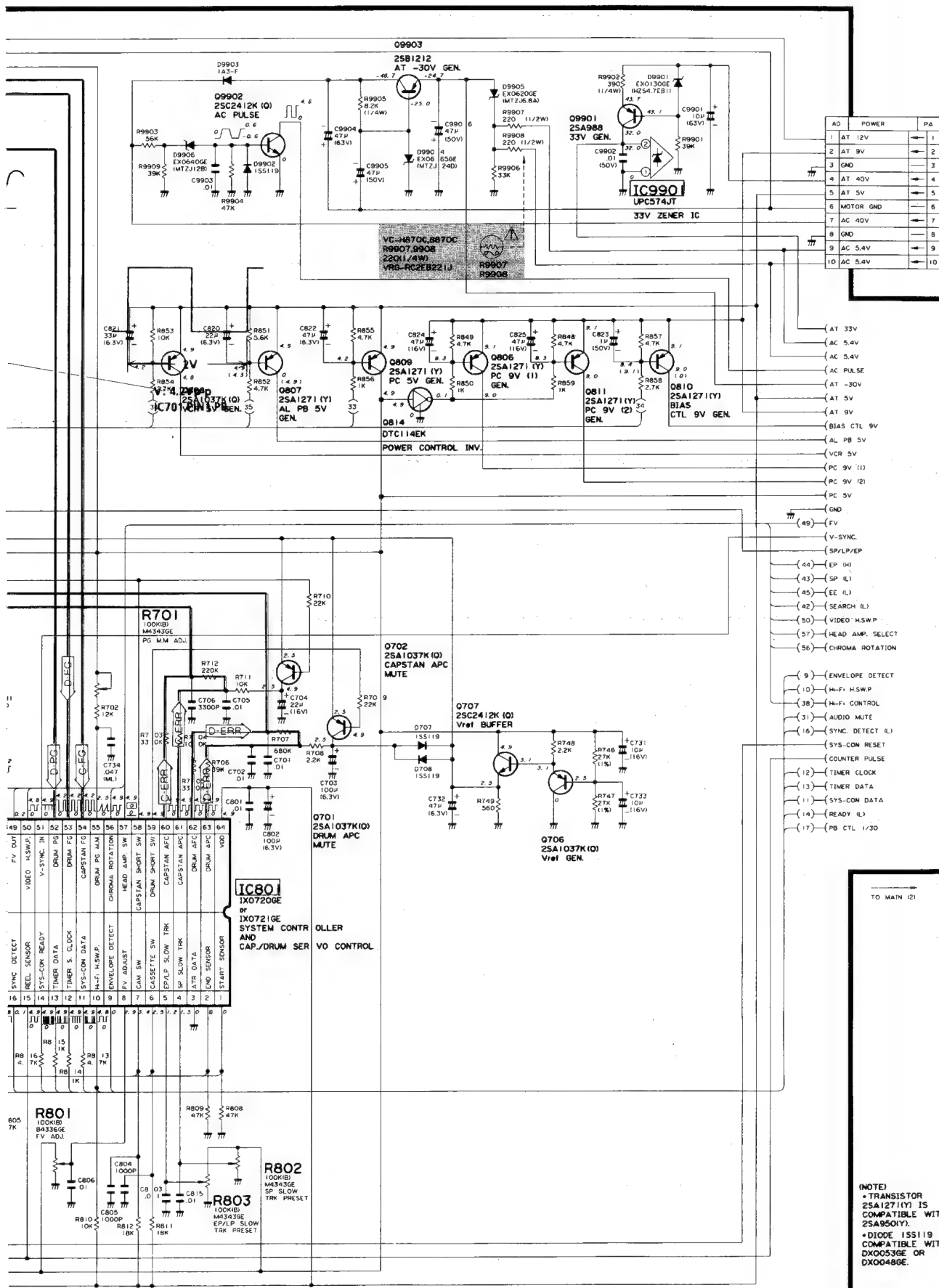
PB Parentheses ()

REC Without Parentheses

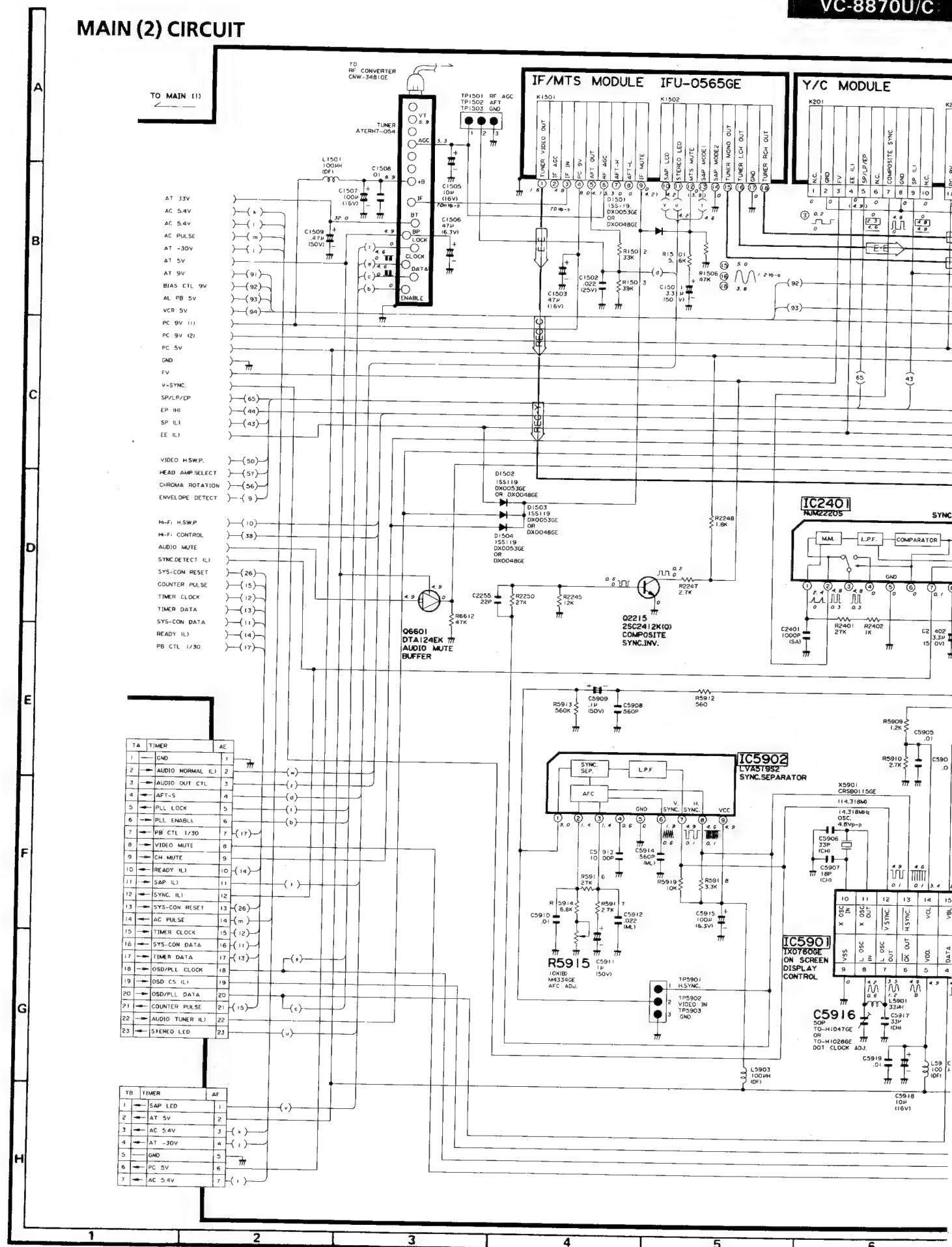
6. CIRCUIT DIAGRAMS AND PWB FOIL PATTERN

OVERALL DIAGRAM





MAIN (2) CIRCUIT

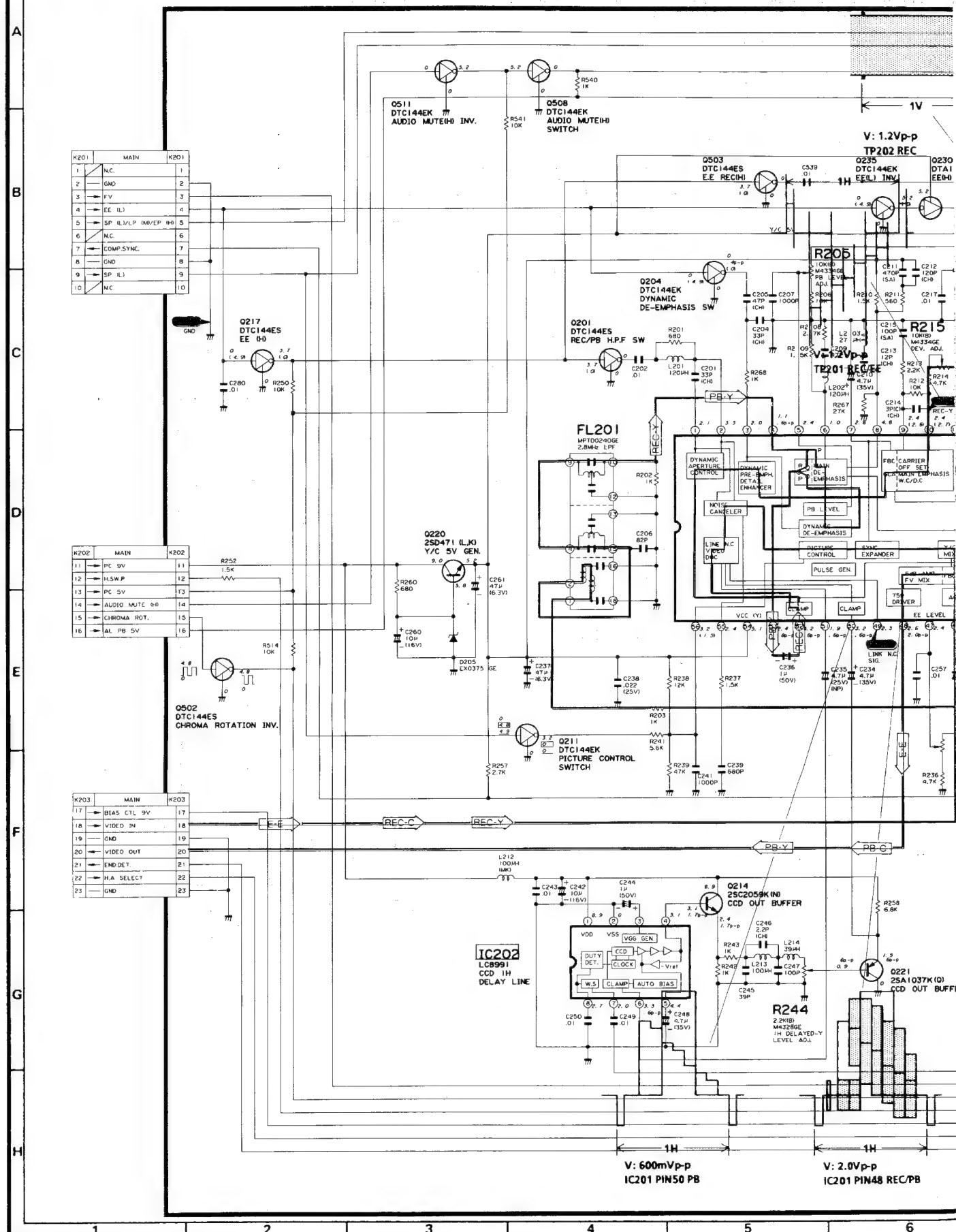


*** VOLTAGE MEASUREMENT MODE**
PB Parentheses ()
REC Without Parentheses

CA	HEAD AMP	XA
1	REC CHROMA	1
2	GND	2
3	REC FM	3
4	BIAS CTL 9V	4
5	H.SWP	5
6	4L PB 5V	6
7	PB CHROMA	7
8	GND	8
9	PB FM	9
10	H.A SELECT	10
11	5P (L)	11
12	ENV DET	12

NOTE
DIODE 1SS119 IS COMPATIBLE
WITH DX0048GE OR DX0053GE

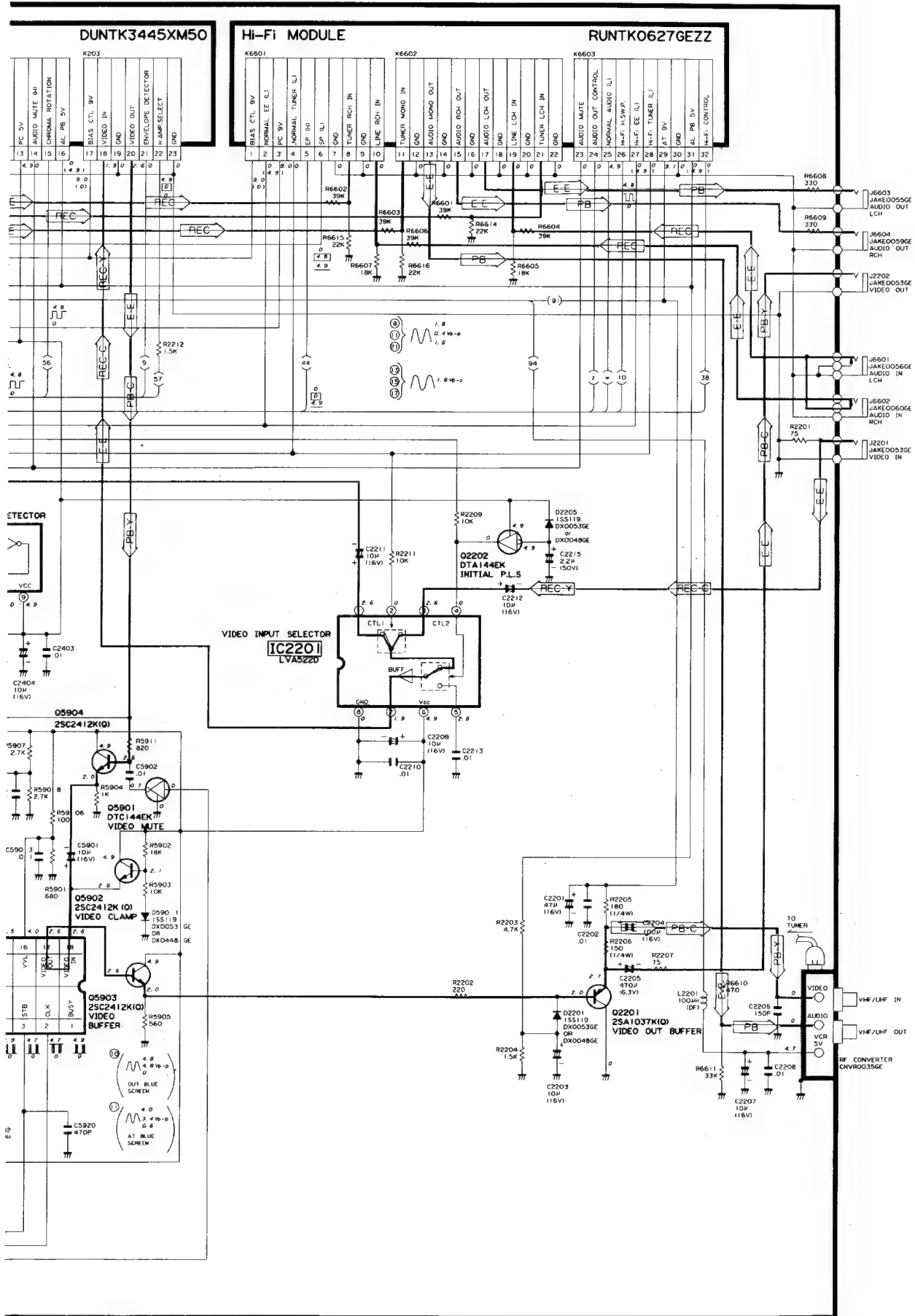
Y/C CIRCUIT



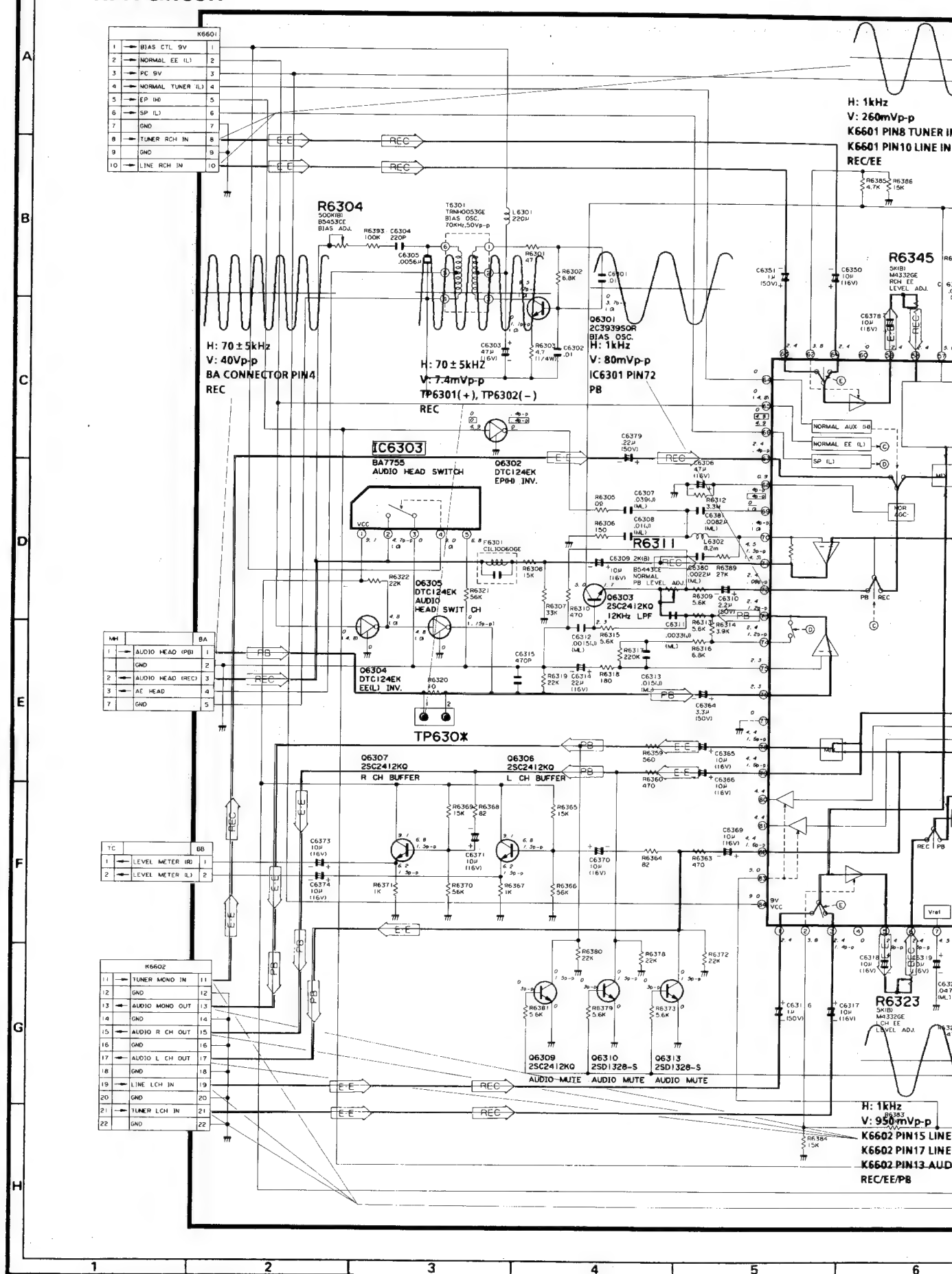
*** VOLTAGE MEASUREMENT MODE**

PB **Parentheses ()**

REC Without Parentheses

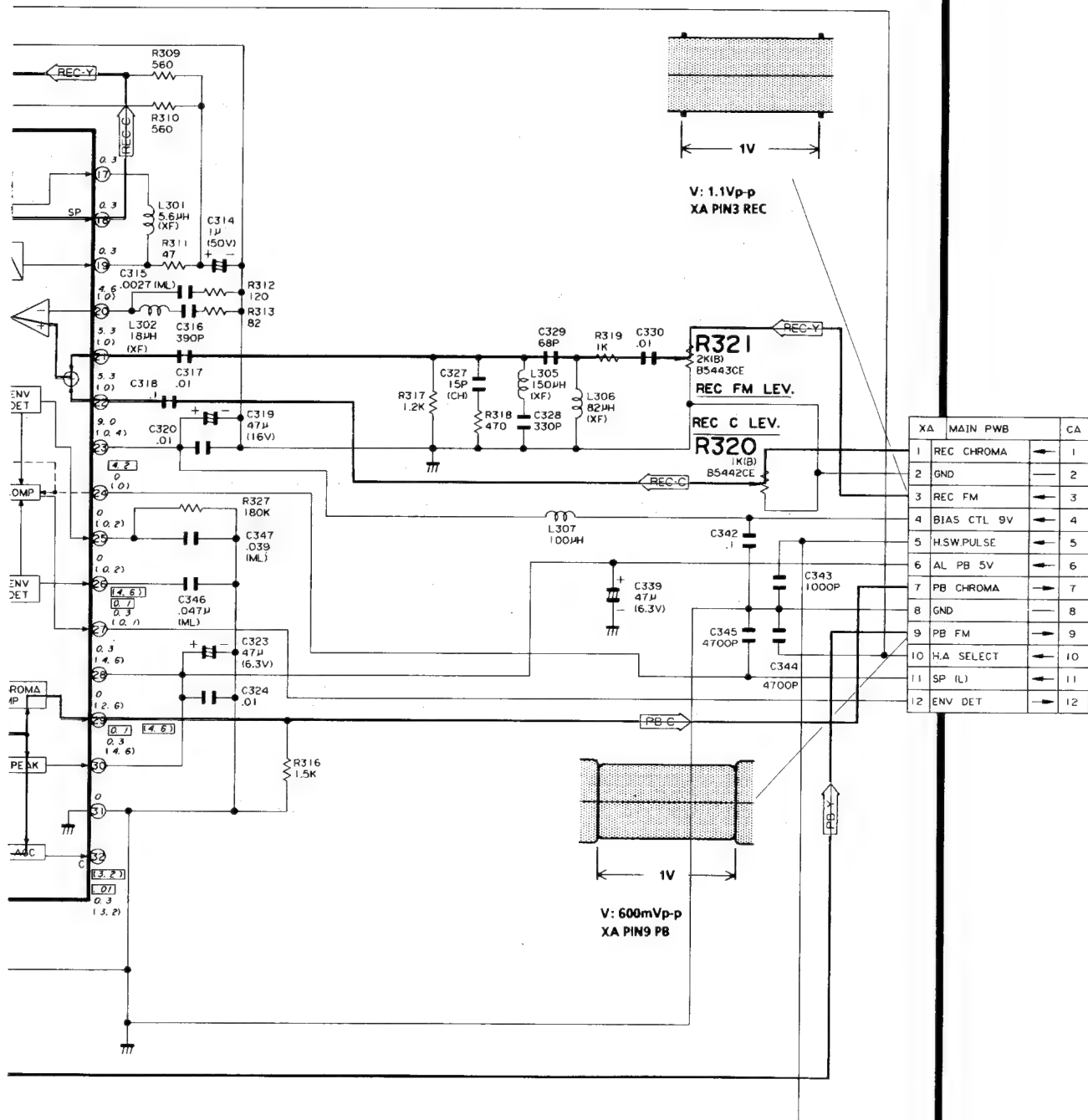


Hi-Fi CIRCUIT

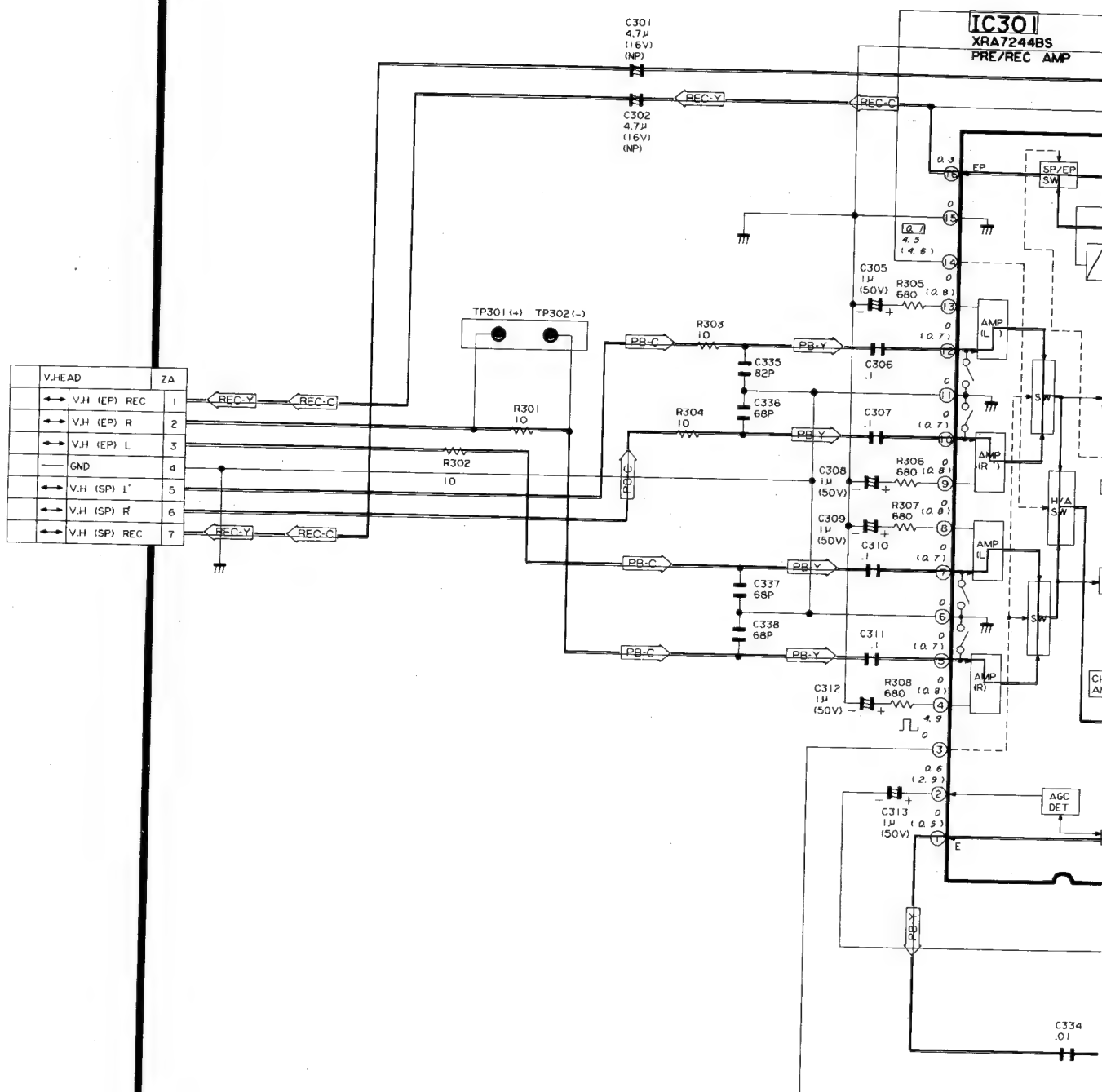


* VOLTAGE MEASUREMENT MODE

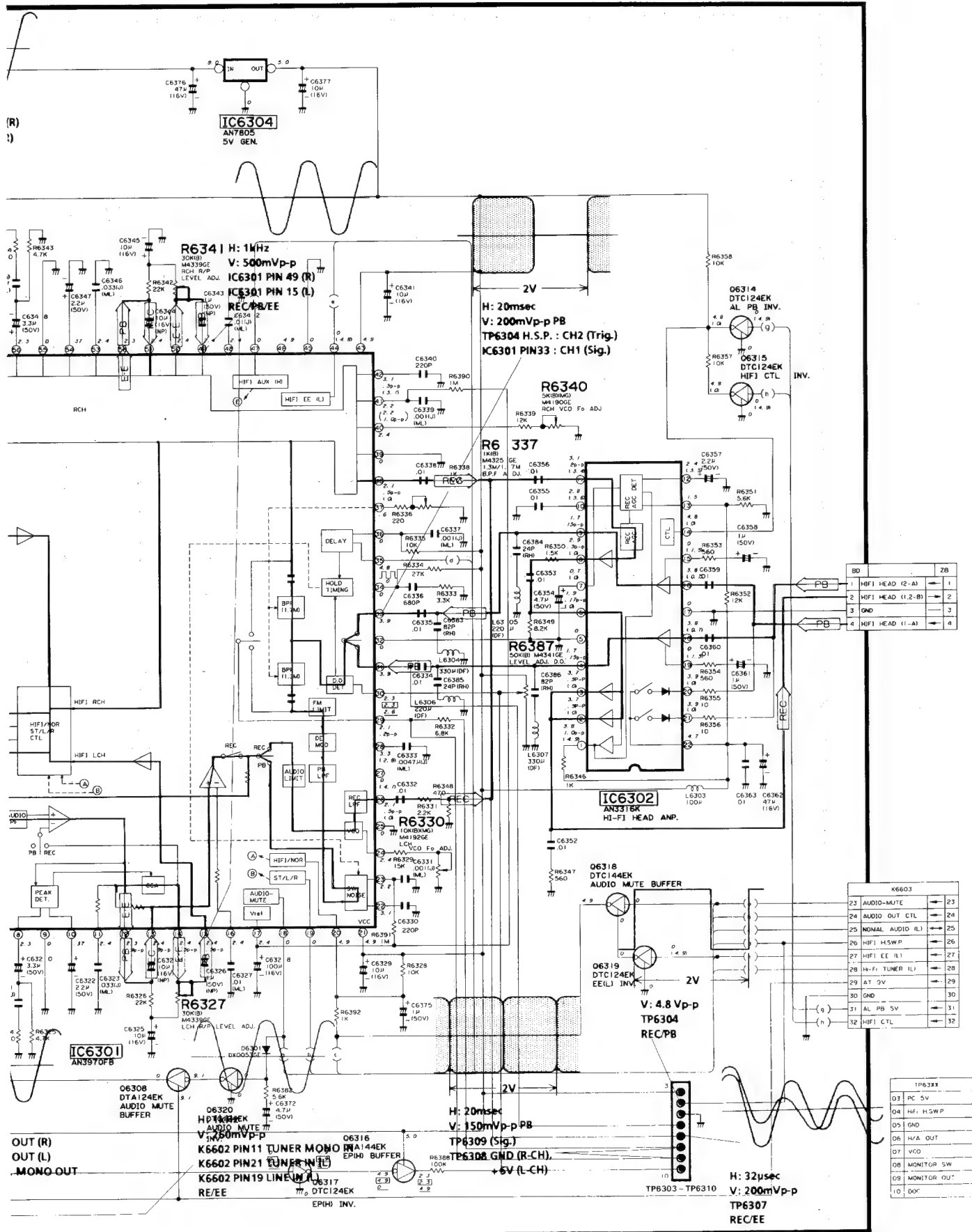
PB Parentheses ()
REC Without Parentheses



HEAD AMP. CIRCUIT



* VOLTAGE MEASUREMENT MODE
PB Parentheses ()
REC Without Parentheses



OUT (R)
OUT (L)
MONO-OUT

K6602 PIN11 TUNER MONO
K6602 PIN21 TUNER INT
K6602 PIN19 LINE INT
RE/EE

H: 20msec
V: 150mVp-p PB
TP6309 (Sig.)
TP6308 GND (R-CH.)
+5V (L-CH.)

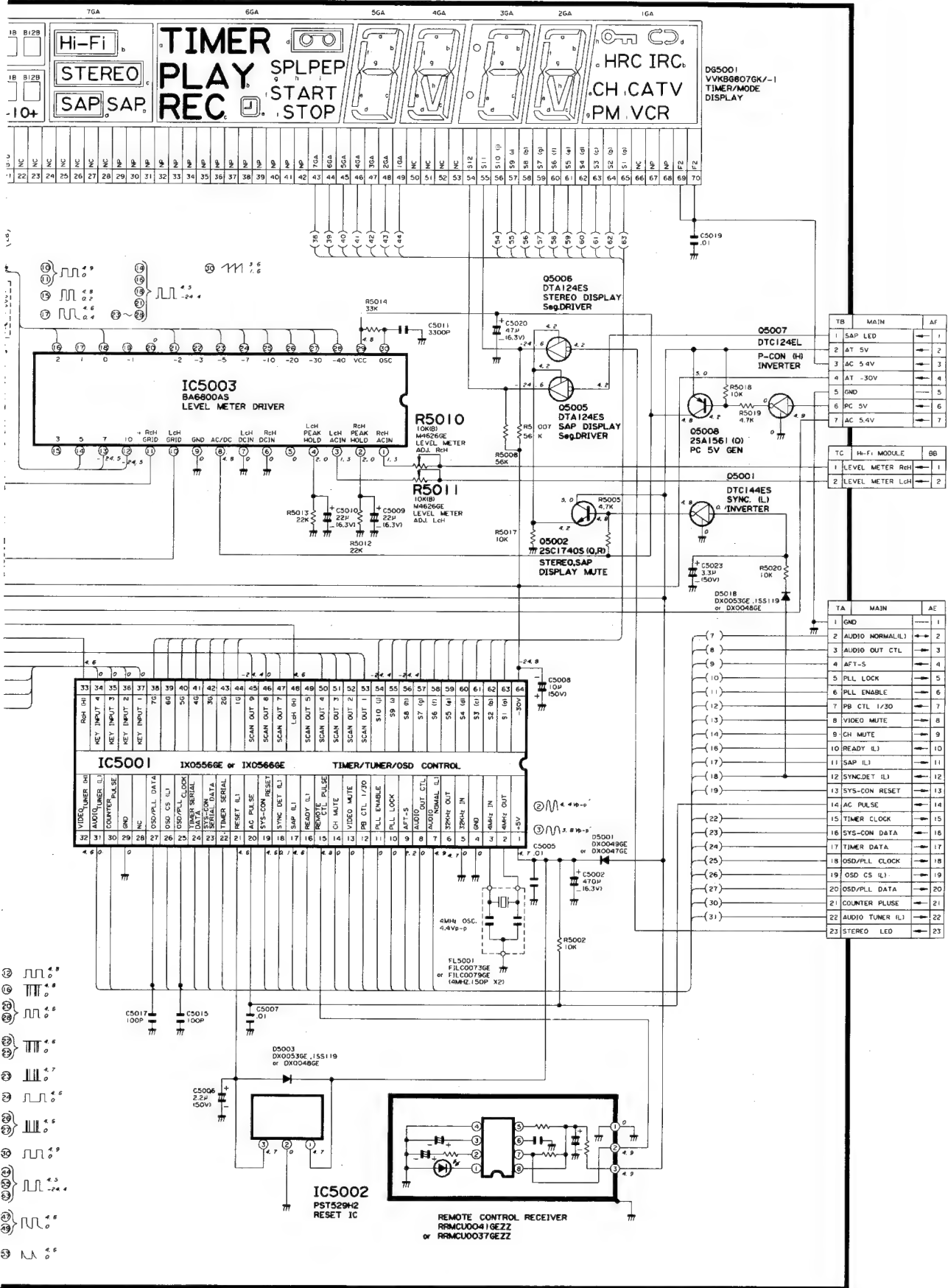
H: 32msec
V: 200mVp-p
TP6307
REC/EE

B0	2B
1 HIF1 HEAD (2-A)	1
2 HIF1 HEAD (1.2-B)	2
3 GND	3
4 HIF1 HEAD (1-A)	4

K6603	23
23 AUDIO-MUTE	23
24 AUDIO OUT CTL	24
25 MONAL AUDIO IL	25
26 HIF1 HSWP	26
27 HIF1 EE IL	27
28 HIF1 TUNER IL	28
29 AT 9V	29
30 GND	30
31 AL PB 5V	31
32 HIF1 CTL	32

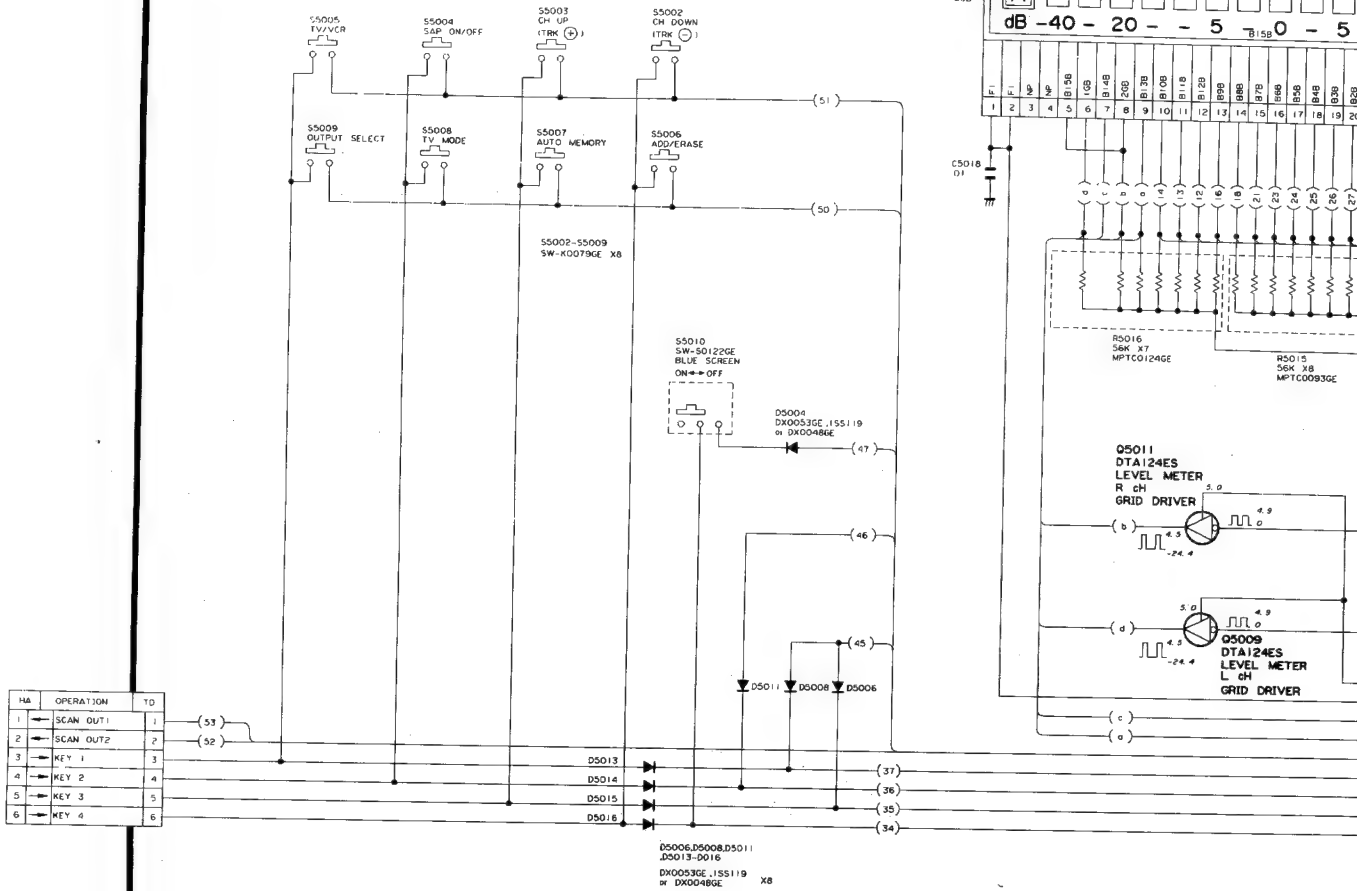
TP6303	03
03 PC 5V	03
04 HIF1 HSWP	04
05 GND	05
06 HIF1 OUT	06
07 VCO	07
08 MONITOR 5W	08
09 MONITOR OUT	09
10 DOX	10



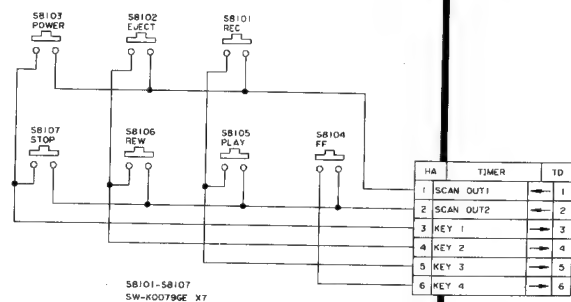


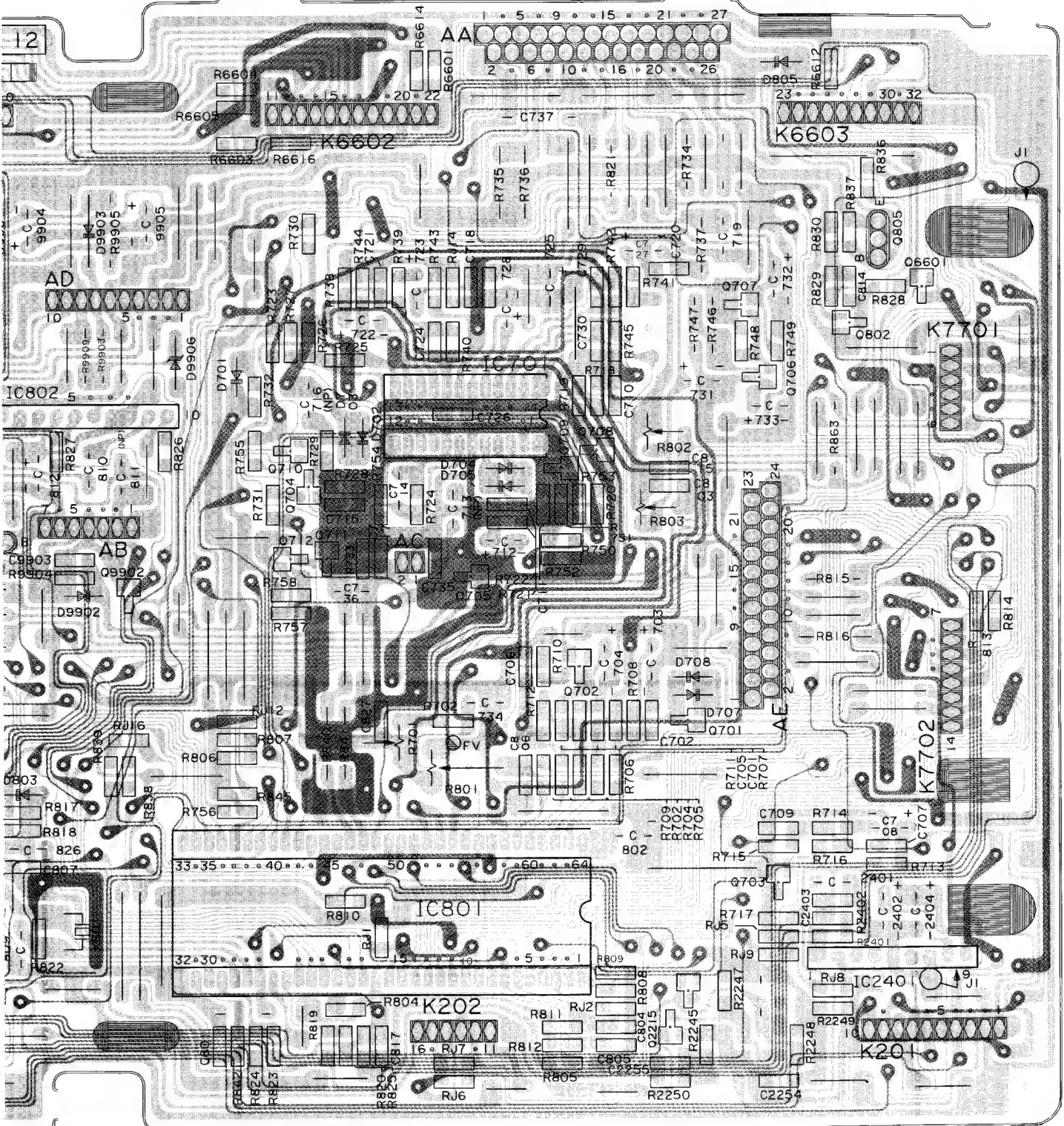
TIMER/OPERATION CIRCUIT

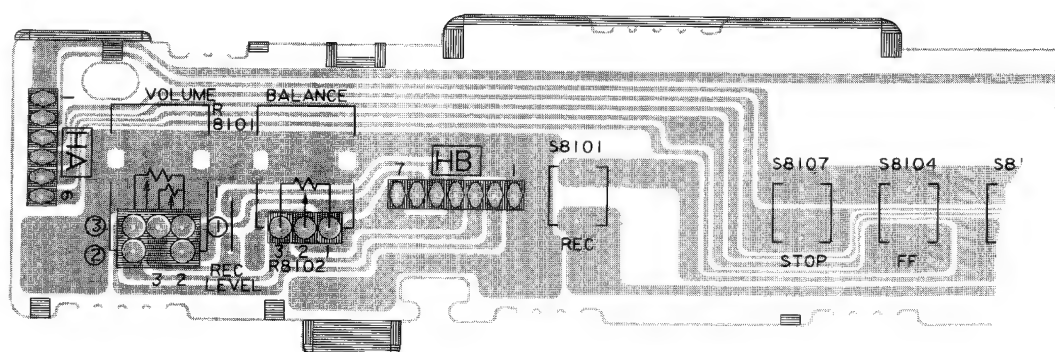
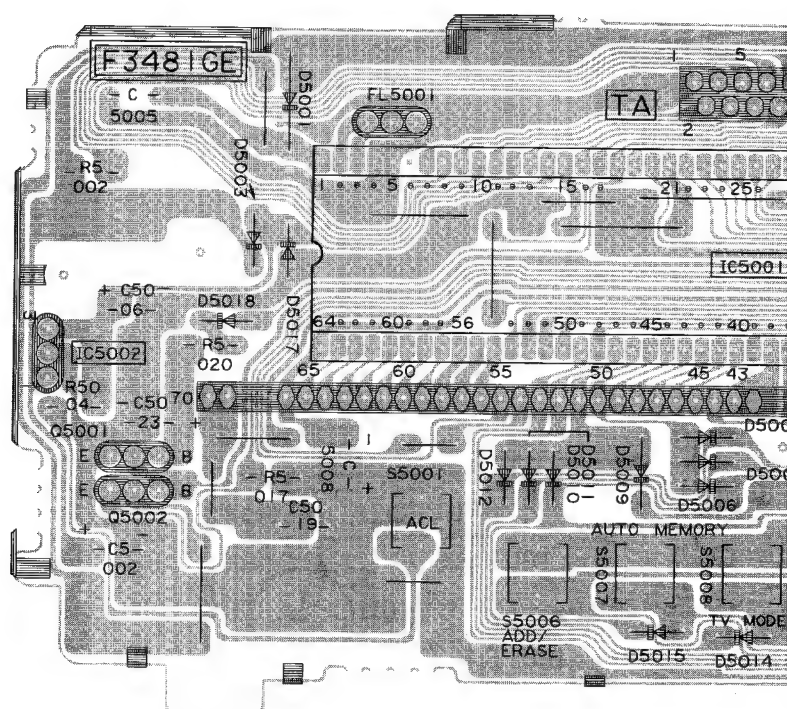
TIMER DUNT3481HE50

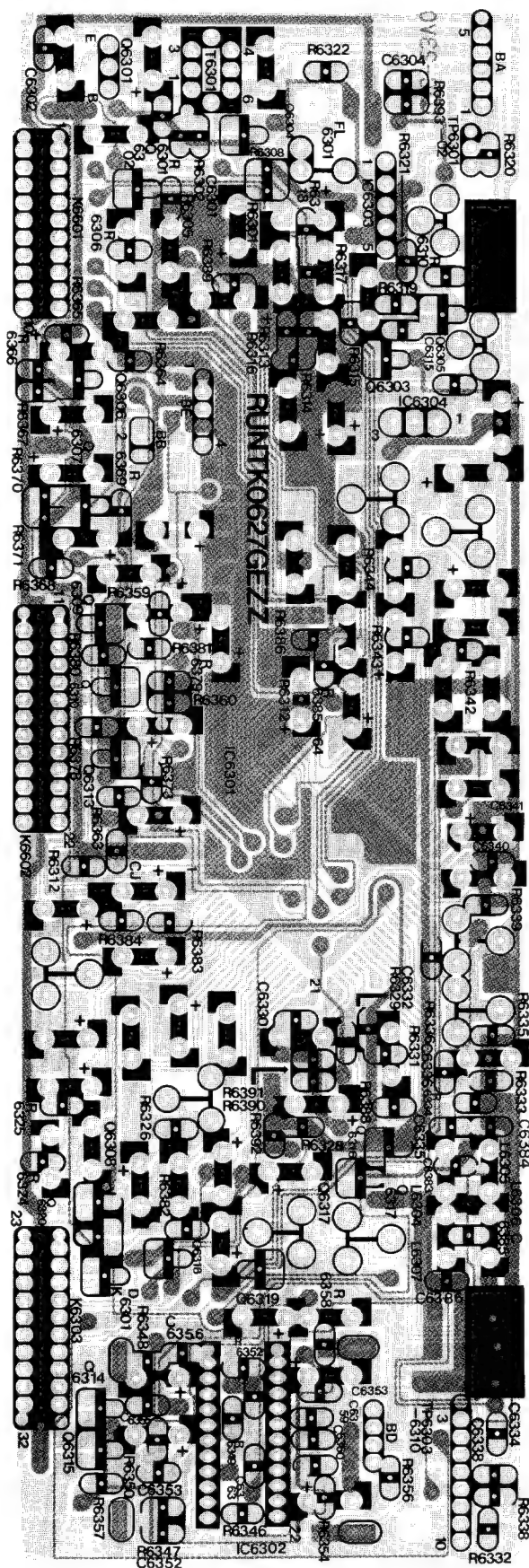
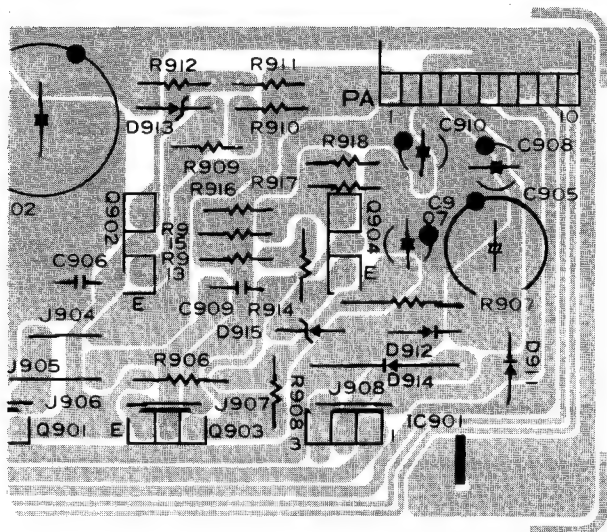


OPERATION DUNT3482HE50

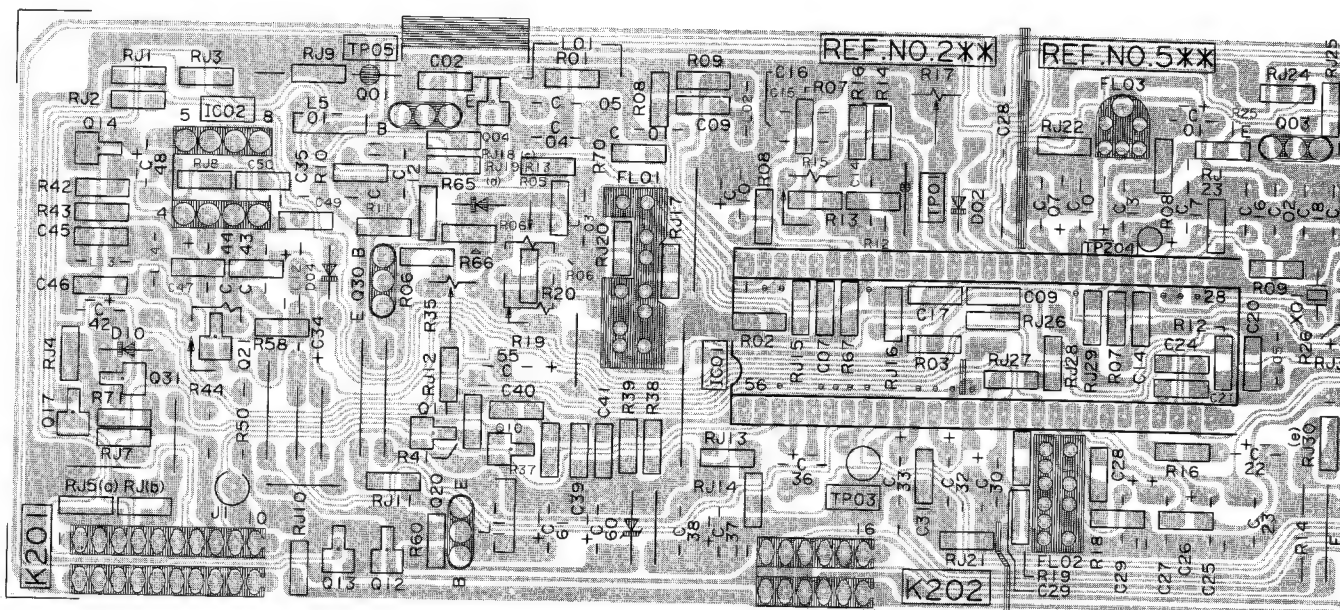


**MAIN PWB**

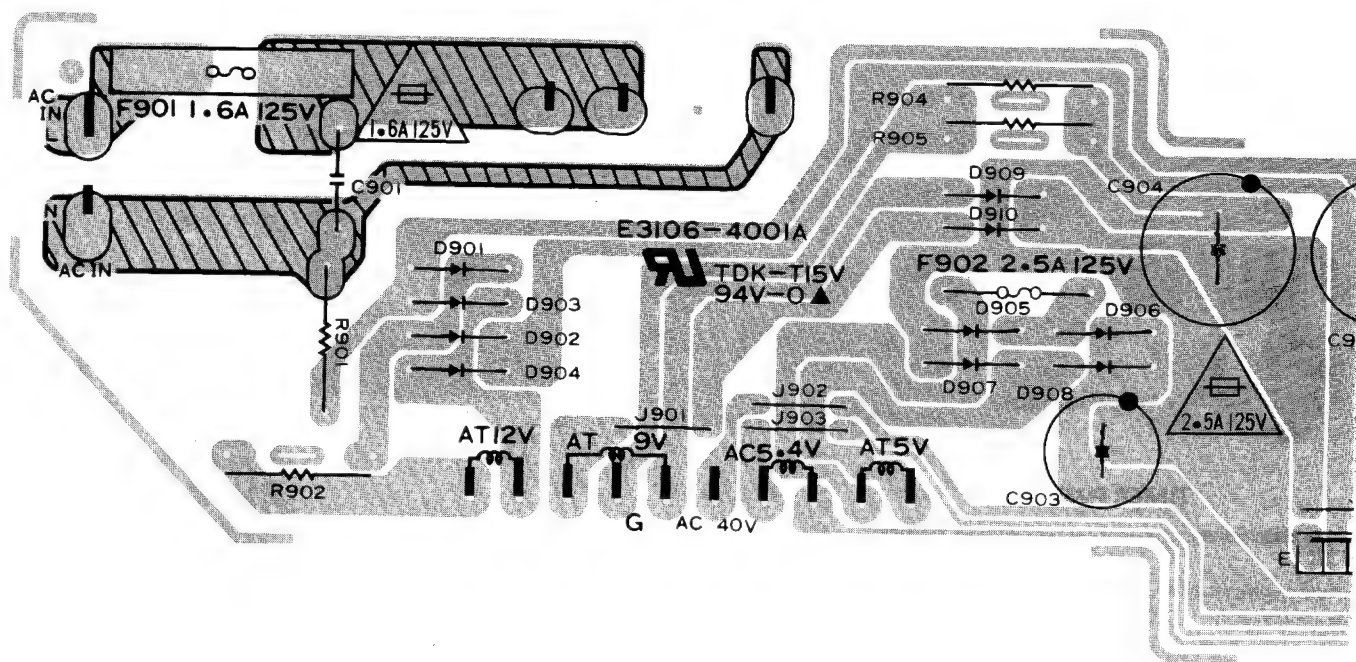




	8	9	10	11	12
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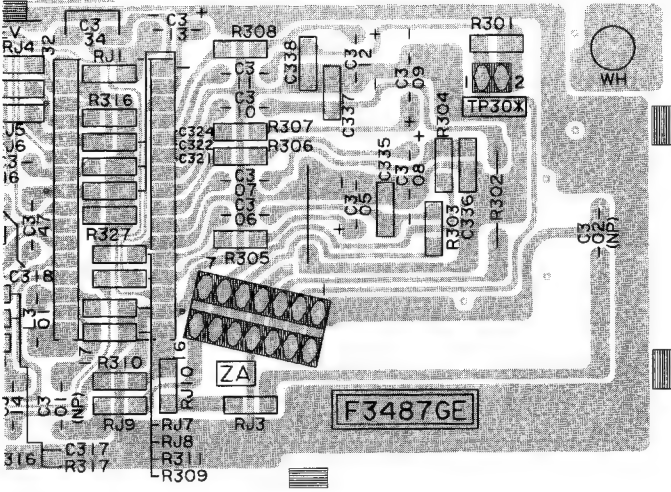


Y/C PWB

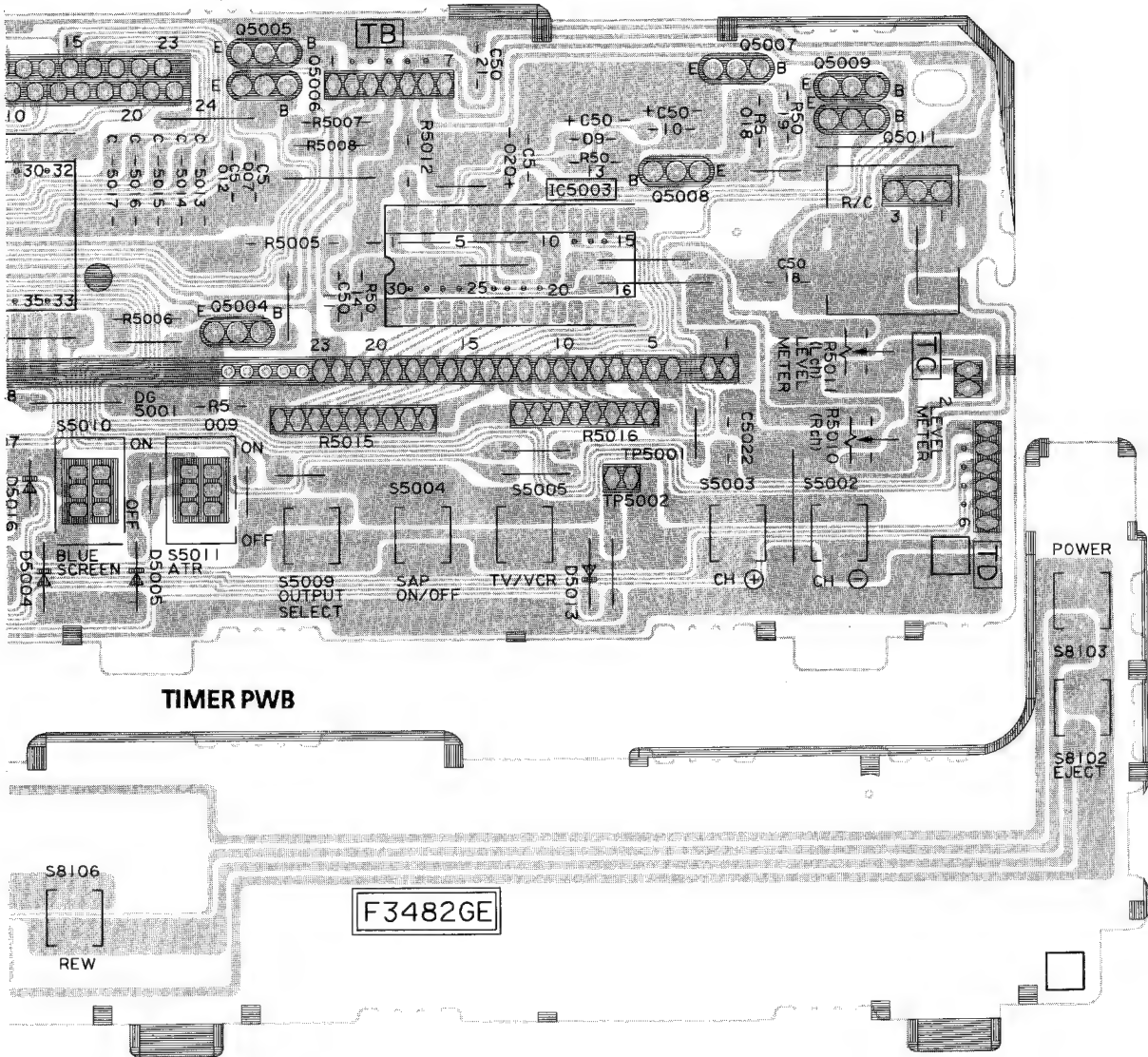


POWER PWB

VC-H870U/C
VC-8870U/C

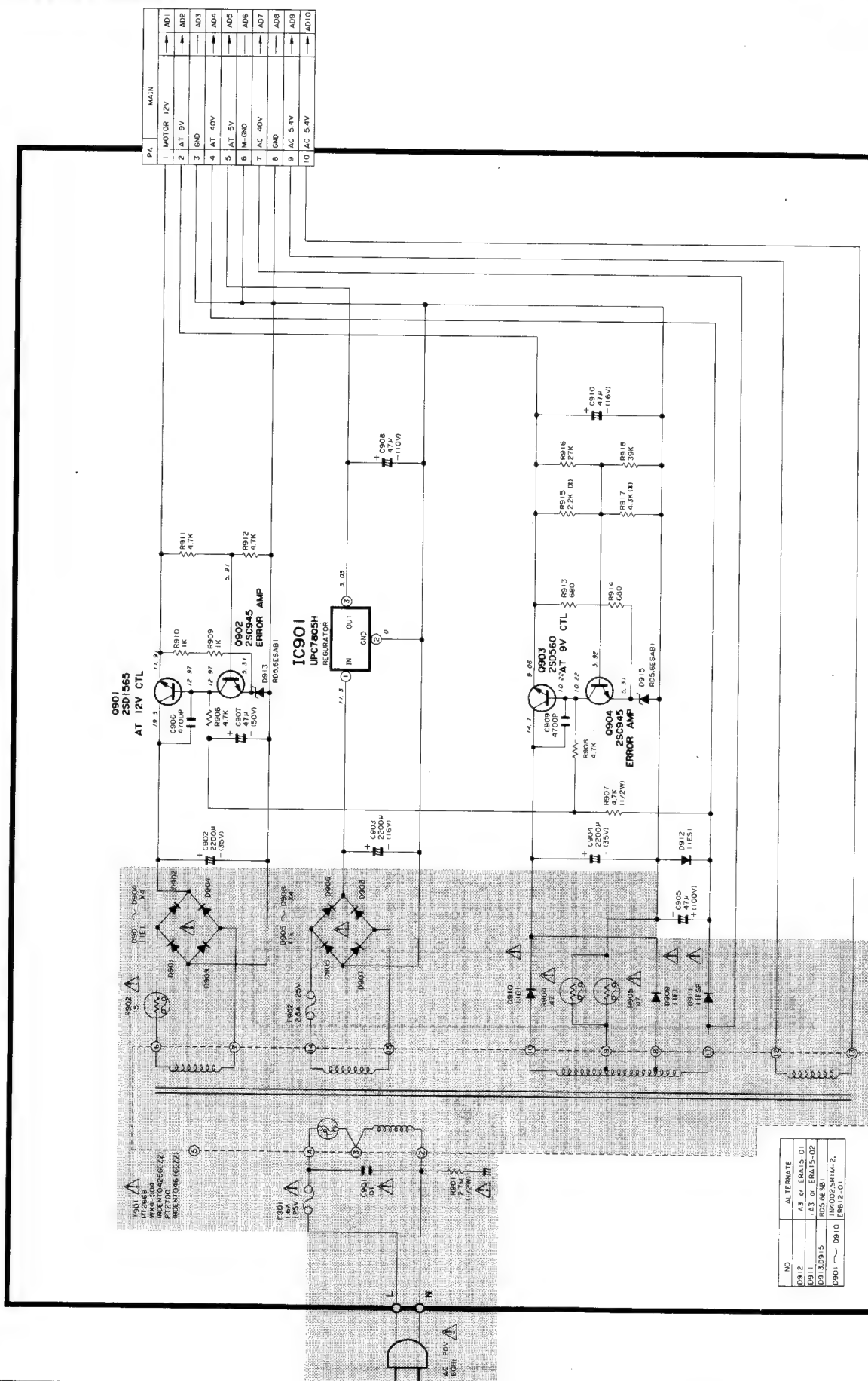


HEAD AMP. PWB



OPERATION PWB

POWER CIRCUIT



NO	ALTERNATE
D912	1A3 or 1BA15-01
D911	1A3 or 1BA15-02
D913, D915	6D5 or 6A1
D901 ~ D910	1N4002, 5014A-2, 6B12-01

IF/MTS CIRCUIT

A

B

C

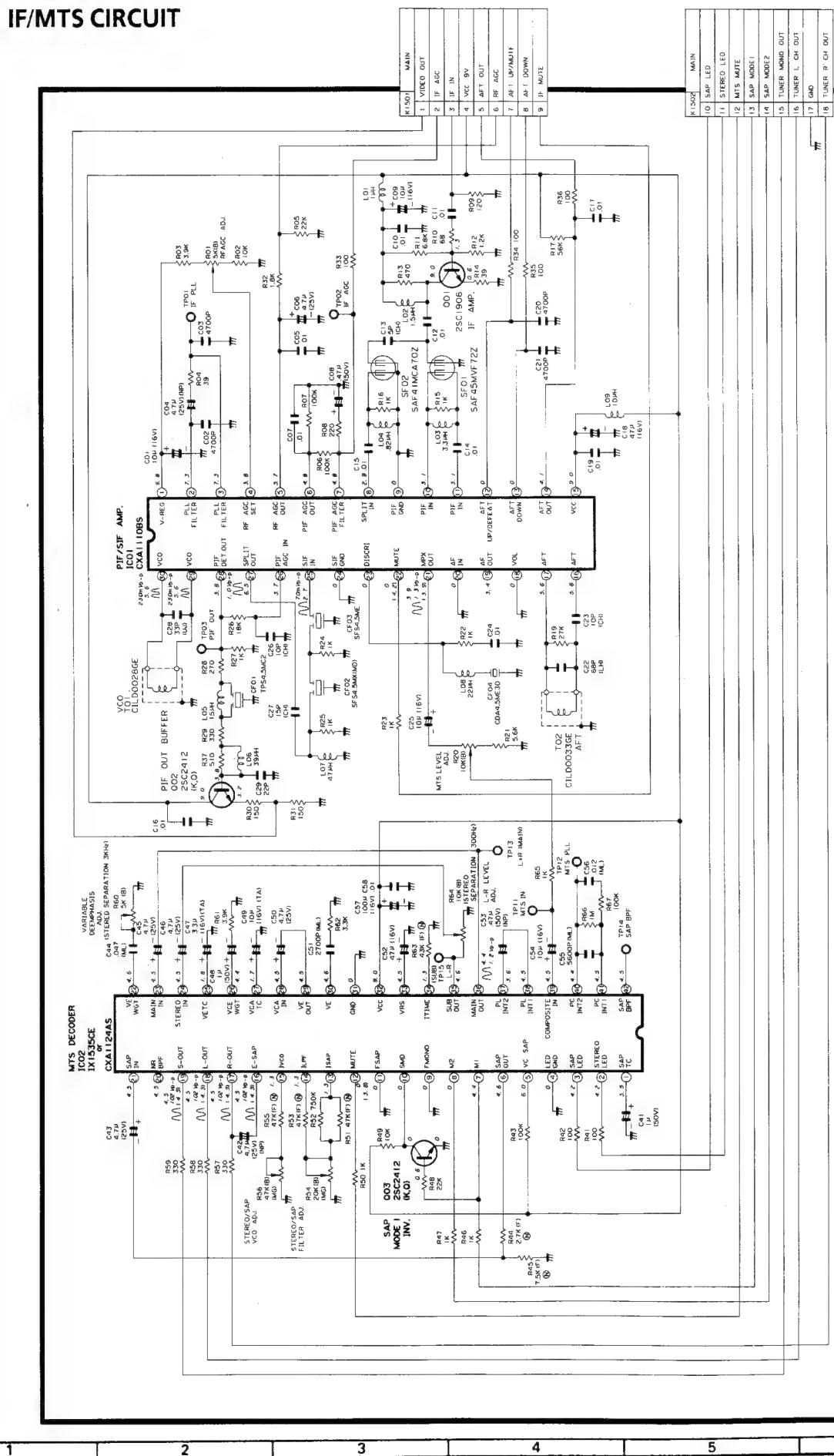
D

E

F

G

H



NOTE ALL REFERENCE NUMBERS ARE IN 163X SERIES.

7. REPLACEMENT PARTS LIST

PARTS REPLACEMENT

Parts marked with " Δ " are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

Les pièces marquées " Δ " sont importantes pour maintenir la sécurité de l'appareil. Ne remplacer ces pièces que par des pièces dont le numéro est spécifié pour maintenir la sécurité et protéger le bon fonctionnement de l'appareil.

"HOW TO ORDER REPLACEMENT PARTS"

in USA: Contact your nearest SHARP Parts Distributor. For location of SHARP Parts Distributor, Call Toll-free 800-447-4700

in CANADA: Contact Sharp Electronics of Canada Limited
Phone (416) 890-2100

To have your order filled promptly and correctly, please furnish the following informations.

- | | |
|-----------------|----------------|
| 1. MODEL NUMBER | 2. REF. NO. |
| 3. PART NO. | 4. DESCRIPTION |
| 5. PRICE CODE | |

Δ MARK: SAFETY RELATED PARTS

Δ PIECES: RELATIVES A LA SECURITE

Ref. No.	Part No.	Description	Code
----------	----------	-------------	------

MAIN CIRCUIT

DUNTK3480XM50	Main Board Assembly (VC-H870U, 8870U)	—
DUNTK3480XM52	Main Board Assembly (VC-H870C, 8870C)	—
	Not Replacement Item	

INTEGRATED CIRCUITS

IC701	VHiLA7116//-1	AH
IC801	RH-IX0720GEZZ	AX
	or	
	RH-IX0721GEZZ	AX
IC802	VHiBA6209//1E	AG
IC2201	VHiLVA522D2-1	AD
IC2401	VHiNJM2220S-1	AG
IC5901	RH-IX0760GEZZ	AS
IC5902	VHiLVA519S2-1	AH
IC9901	VHiUPC574JT-1	AC

Ref. No.	Part No.	Description	Code
TRANSISTORS			
Q701, 702, 704, 706, 808, 2201	VS2SA1037KQ-1	2SA1037K	AA
Q705, 711, 814	VSDTC114EK/-1	DTC114EK	AB
Q707, 712, 802, 803, 804, 2215, 5902, 5903, 5904, 9902	VS2SC2412KQ-1	2SC2412K	AA
Q805	VS2SC3377-Q-1	2SC3377	AC
	or		
	VS2SC2001LK-1	2SC2001(LK)	AA
Q806, 807, 809, 810, 811, 813	VS2SA1271-Y-1	2SA1271Y	AB
	or		
	VS2SA950-Y/1E	2SA950Y	AD
Q2202	VSDTA144EK/-1	DTA144EK	AC
Q5901	VSDTC144EK/-1	DTC144EK	AB
Q6601	VSDTA124EK/-1	DTA124EK	AB
Q9901	VS2SA988///1E	2SA988	AB
Q9903	VS2SB1212//1E	2SB1212	AC
DIODES AND CRYSTALS			
D701 	VHD1SS119//-1	1SS119	AB
	or		
705, 707, 708, 804, 805, 1501 	RH-DX0053GEZZ	1SS132	AA
	or		
	RH-DX0048GEZZ	1N4531	AA
1504, 2201, 2205, 5901, 9902			
D810, 9903	VHD1A3-F///-1	1A3-F	AA
D9901	RH-EX0130GEZZ	HZS4.7E	AA
D9904	RH-EX0665GEZZ	MTZJ24DT-72	AA

Ref. No.	Part No.	Description	Code
D9905	RH-EX0620GEZZ	MTZJ6.8AT-72	AA
D9906	RH-EX0640GEZZ	MTZJ12BT-72	AA
X801	RCRSB0009GEZZ	CRYSTAL—3.58MHz	AL
X5901	RCRSB0115GEZZ	CRYSTAL—14.318MHz	AF

COILS

L1501,	VP-DF101K0000	100μH	AB
2201,			
5902,			
5903			
L5901	VP-XF330K0000	33μH	AB

CONTROLS

R701,	RVR-M4343GEZZ	100k(B) PG MM Adj.	AB
802,		100k(B)SP Slow Tracking Preset	
803		100k(B)EP/LP Slow Tracking Preset	
R801	RVR-B4336GEZZ	100k(B) FV Adj.	AD
R5915	RVR-M4334GEZZ	10k(B) AFC Adj.	AB

CAPACITORS

C703,	VCEAEA0JW107M	100μF, 6.3V, 20%, Electrolytic	AB
802			
C712	RC-EZ0123GEZZ	47μF, 10V, Electrolytic	AB
C713	VCE9EA1HW475M	4.7μF, 50V, 20%, Electrolytic (N.P)	AD
C716	VCE9EA1HW225M	2.2μF, 50V, 20%, Electrolytic (N.P)	AB
C719,	RC-KZ0029GEZZ	0.1μF, 25V, Ceramic	AA
810			
C811	VCE9EA1HW105M	1.0μF, 50V, 20%, Electrolytic (N.P)	AC
C1507,	VCEAEA1CW107M	100μF, 16V, 20%, Electrolytic	AC
2204			
C2205	VCEA2A0JW477M	470μF, 6.3V, 20%, Electrolytic	AB
C5912	RC-QZA223TAYJ	0.022μF, 50V, 5%, Mylar	AB
C5914	RC-QZA561TAYJ	560pF, 50V, 5%, Mylar	AB
C5915	VCEAGA0JW107M	100μF, 6.3V, 20%, Electrolytic	AB

TRIMMER

C5916	RTO-H1047GEZZ	50pF, Dot Clock Adj.	AC
	or		
	RTO-H1028GEZZ		AD

Ref. No.	Part No.	Description	Code
RESISTORS			
△R9907,	VRG-RC2EB221J	220 ohm, 1/4W, 5%, Fuse	AB
△ 9908		Resistor (VC-H870C, 8870C)	

MISCELLANEOUS

J2201,	QJAKE0053GEZZ	Jack, Video Input	AD
2202		Jack, Video Output	
J6601	QJAKE0056GEZZ	Jack, Audio Input (L-CH)	AC
J6602	QJAKE0060GEZZ	Jack, Audio Input (R-CH)	AC
J6603	QJAKE0055GEZZ	Jack, Audio Output (L-CH)	AD
J6604	QJAKE0059GEZZ	Jack, Audio Output (R-CH)	AC
	QPLGN0278GEZZ	Plug, 2 pin (AC)	AA
	QPLGN0352GEZZ	Plug, 3 pin (TP1501-TP1503, AA TP5901-TP5903)	
	QPLGN0679GEZZ	Plug, 6 pin (K202)	AB
	QPLGN0779GEZZ	Plug, 7 pin (K203)	AB
	QPLGN0778GEZZ	Plug, 7 pin (AB, AF)	AC
	QPLGN1078GEZZ	Plug, 10 pin (AD)	AC
	QPLGN1079GEZZ	Plug, 10 pin (K201, K6601, K6603)	AB
	QPLGN1279GEZZ	Plug, 12 pin (K6602)	AC
	QSOCN2394GEZZ	Socket, 23 pin (AE)	AD
	QSOCN2794GEZZ	Socket, 27 pin (AA)	AD
	RCNVR0035GEZZ	RF Converter	AW
	RiFU-0565GEZZ	IF Pack	BH
	VTUATERH7-054	Tuner	BF

Y/C CIRCUIT

DUNTK3445XM50	Y/C Board Assembly Not Replacement Item	—
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INTEGRATED CIRCUITS

IC201	VHiHA1181051E	AU
IC202	VHiLC8991// -1	AH

TRANSISTORS

Q201,	VSDTC144ES/-1	DTC144ES	AB
502,			
503,			
508			
Q204,	VSDTC144EK/-1	DTC144EK	AB
211,			
217,			
235,			
504,			
511			
Q205,	VS2SC1923-O1E	2SC1923	AD
206			

Ref. No.	Part No.	Description	Code	Ref. No.	Part No.	Description	Code
Q207	VS2C1740SQR1E	2SC1740S	AC	217,		10k(B) FM Carrier Adj.	
Q214	VS2SC2059KN1E	2SC2059K	AC	219,		10k(B) REC Level Adj.	
Q220	VS2SD471-KL1E	2SD471	AC	235		10k(B) EE Level Adj.	
Q221	VS2SA1037KQ-1	2SA1037K	AA	R244	RVR-M4328GEZZ	2.2k(B) 1H Delayed-Y Level Adj.	AB
Q230	VSDTA114ES/-1	DTA114ES	AB				
Q231	VSDTA124ES/-1	DTA124ES	AB				
Q501, 509	VS2SC2412KQ-1	2SC2412K	AA				
DIODES AND CRYSTAL				CAPACITORS			
D204, 206, 210	VHD1SS119// -1 or RH-DX0053GEZZ	1SS119 1SS132	AB AA	C233	VCE9EA1CW106M	10μF, 16V, 20%, Electrolytic (N.P)	AC
	or RH-DX0048GEZZ	1N4531	AA	C235	VCE9EA1EW475M	4.7μF, 25V, 20%, Electrolytic (N.P)	AC
D205	RH-EX0375GEZZ	HZS6	AA	C265, 509, 516, 523	RC-KZ0029GEZZ	0.1μF, Ceramic	AA
D502	VHD1SS166// -1	1SS166	AC	C503	RC-QZA332TAYJ	3300pF, 50V, 5%, Mylar	AB
X501	RCRSB0069GEZZ	Crystal - 3.58MHz	AH	C517	VCEAEA0JW107M	100μF, 6.3V, 20%, Electrolytic	AB
COILS AND FILTERS				C537	RC-QZA182TAYJ	1800pF, 50V, 5%, Mylar	AB
DL501	RCiLZ0208GEZZ	Delay Line	AN	MISCELLANEOUS			
	or RCiLZ0207GEZZ		AQ	QPLGN0373GEZZ	Plug, 3 pin (TP501-TP503)		AA
FL201	RMPTD0240GEZZ	L.P.F. - 2.8MHz	AK	QPLGN1278GEZZ	Plug, 12 pin (CA)		AC
FL501	RCiLF0159GEZZ	Filter	AF	QSOCN0652REZZ	Socket, 6 pin (K202)		AB
FL502	RMPTD0178GEZZ	B.P.F. - 3.58MHz	AG	QSOCN0752REZZ	Socket, 7 pin (K203)		AB
FL503	RCiLF0194GEZZ	Filter	AD	QSOCN1052REZZ	Socket, 10 pin (K201)		AC
	or RCiLF0181GEZZ		AE	HEAD AMP. CIRCUIT			
L201, 202	VP-XF121K0000	120μH	AB	DUNTK3487XM51	Head Amp. Board Assembly Not Replacement Item		—
L203	VP-XF270K0000	27μH	AB	INTEGRATED CIRCUIT			
L204, 214	VP-XF390K0000	39μH	AB	IC301	VHiXRA7244B-1		AK
L205	VP-XF330K0000	33μH	AB	COILS			
L206	VP-XF220K0000	22μH	AB	L301	VP-XF5R6K0000	5.6μH	AB
L207	VP-XF151K0000	150μH	AB	L302	VP-XF180K0000	18μH	AB
L208	VP-XF221K0000	220μH	AB	L305	VP-XF151K0000	150μH	AB
L209	VP-XF180K0000	18μH	AB	L306	VP-XF820K0000	82μH	AB
L210, 212	VP-MK101K0000	100μH	AB	L307	VP-DF101K0000	100μH	AB
L213	VP-XF101K0000	100μH	AB	CONTROLS			
L502	VP-MK561K0000	560μH	AB	R205,	RVR-M4334GEZZ	10k(B) PB Level Adj.	AB
L503	VP-MK471K0000	470μH	AB	215,		10k(B) Dev. Adj.	
L505	VP-XF100K0000	10μH	AB	R320	RVR-B5442CEZZ	1k(B) RECC Level	AB
				R321	RVR-B5443CEZZ	2k (B) REC FM Level	AB

Ref. No.	Part No.	Description	Code
CAPACITORS			
C301, 302	VCE9EA1CW475M	4.7 μ F, 16V, 20%, Electrolytic (N.P)	AB
C306, 307, 310, 311, 318, 342	RC-KZ0029GEZZ	0.1 μ F, Ceramic	AA
MISCELLANEOUS			
	QPLGN0273GEZZ	Plug, 2 pin (TP301-TP302)	AA
	QPLGN1280GEZZ	Plug, 12 pin (XA)	AC
	QSOCN0732REZZ	Socket, 7 pin (ZA)	AC
TIMER CIRCUIT			
	DUNTK3481HE50	Timer Board Assembly Not Replacement Item	—
INTEGRATED CIRCUITS			
IC5001	RH-IX0556GEZZ or RH-IX0566GEZZ		AW
IC5002	VHiPST529H2-1		AD
IC5003	VHiBA6800AS-1		AR
TRANSISTORS			
Q5001	VSDTC144ES/-1	DTC144ES	AB
Q5002	VS2C1740SQR1E	2SC1740S	AC
Q5005, 5006, 5009, 5011	VSDTA124ES/-1	DTA124ES	AB
Q5007	VSDTC124ELT-1	DTC124EL	AA
Q5008	VS2SA1561Q/1E	2SA1561L2Q	AC
DIODES			
D5001, 5003, 5004, 5006, 5008, 5011, 5013 5016, 5018	RH-DX0049GEZZ RH-DX0053GEZZ or VHD1SS119// -1 or RH-DX0048GEZZ	ERA82-004 1SS132 1SS119 1N4531	AC AA AB AA

Ref. No.	Part No.	Description	Code
PACKAGED CIRCUITS			
R5015	RMPTC0093GEZZ	Resister Array	AC
R5016	RMPTC0124GEZZ	Resister Array	AB
FILTER			
FL5001	RFiLC0073GEZZ or RFiLC0079GEZZ	Osc. - 4MHz	AD AD
CONTROLS			
R5010, 5011	RVR-M4626GEZZ	10k(B) Level Meter Adj. (R-CH) 10k(B) Level Meter Adj. (L-CH)	AB AB
CAPACITOR			
C5002	VCEA2A0JW477M	470 μ F, 6.3V, 20% Electrolytic	AB
MISCELLANEOUS			
DG5001	VVKBG807GK/-1	Fluorescent Display Tube	AY
	RRMCU0037GEZZ or RRMCU0041GEZZ	Remote Control Receiver	AL AM
	QPLGN0278GEZZ	Plug, 2 pin (TC)	AA
	QPLGN0780GEZZ	Plug, 7 pin (TB)	AC
	QPLGZ0630GEZZ	Plug, 6 pin (TD)	AC
	QSOCN2395GEZZ	Socket, 23 pin (TA)	AD
S5002, 5003, 5004, 5005, 5006, 5007, 5008, 5009 S5010	QSW-K0079GEZZ	Switch, CH Down (TRK (-)) Switch, CH Up (TRK (+)) Switch, SAP On/Off Switch, TV/VCR Switch, ADD/Erase Switch, Auto Memory Switch, TV, Mode Switch, Out put Select Switch, Blue Screen	AB AB AD AD AD AD AD AD AD
OPERATION CIRCUIT			
	DUNTK3482HE50	Operation Board Assembly Not Replacement Item	—
MISCELLANEOUS			
S8101	QSOCZ0630GEZZ	Socket, 6 pin (HA)	AC
S8102, 8103, 8104, 8105, 8106, 8107	QSW-K0079GEZZ	Switch, REC Switch, Eject Switch, Power Switch, FF Switch, Play Switch, REW Switch, Stop	AB AB AB AB AB AB AB

Ref. No.	Part No.	Description	Code	Ref. No.	Part No.	Description	Code
HI-FI CIRCUIT							
	RUNTK0627GEZZ	Hi-Fi Board Assembly Not Replacement Item	—				
INTEGRATED CIRCUITS							
IC6301	VHiAN3970FB-1		AU	R6327,	98MVZ067L134/	30k(B) R/P Level (L-CH) Adj.	AB
IC6302	VHiAN3316K/-1		AG	6341		30k(B) R/P Level (R-CH) Adj.	
IC6303	VHiBA7755/-1		AD	R6330	98MVG067L114/	10k(B) (MG) VCO Fo (L-CH) Adj.	AC
IC6304	VHiAN7805F/-1		AF	R6337	98MVZ067L113/	1k(B) 1.3M/1.7M B.P.F. Adj.	AB
				R6340	98MVG067L153/	5k(B) (MG) VCO Fo (R-CH) Adj.	AB
				R6387	98MVZ067L154/	50k(B) D.O. Level Adj.	AC
TRANSISTORS				TRANSFORMER			
Q6301	98M-2SC3939//	2SC3939R	AD	T6301	RTRNH0053GEZZ	Bias Osc.	AE
Q6302,	98M-UN2212///	UN2212	AB	CAPACITORS			
6304,				C6305	98MECQP1-562J	5600pF, 100V, $\pm 5\%$, Film	AD
6305,				C6324,	98MA1CN100SB/	10 μ F, 16V, Electrolytic (N.P)	AB
6314,				6344			
6315,				C6326,	98MA1HN010SB/	1 μ F, 50V, Electrolytic (N.P)	AB
6317,				6343			
6320				C6328	98MA1CU101B//	100 μ F, 16V, Electrolytic	AB
Q6303,	98M2SC2712Y/G	2SC2712Y or G	AB	MISCELLANEOUS			
6306,				98MB5B-PH-KS/	Plug, 5 pin (BA)		AB
6307,				98MB2B-PH-KS/	Plug, 2 pin (BB)		AB
6309				98MB4B-PH-KS/	Plug, 4 pin (BD)		AB
Q6308	98M-UN2112///	UN2112	AB	98M10MQ-ST///	Plug, 10 pin (K6601, K6603)		AC
Q6310,	98M2SD1306///	2SD1306	AC	98M12MQ-ST///	Plug, 12 pin (K6602)		AD
	or			98MS02B-DR///	Plug, 2 pin (TP6301, 6302)		AB
6313	98M2SD1328///	2SD1328	AC	98MS08B-DR///	Plug, 8 pin (TP6303-6310)		AC
Q6316	98M-UN2113///	UN2113	AB	POWER CIRCUIT			
Q6318,	98M-UN2213///	UN2213	AB	RDENT0426GEZZ	Power Board Assembly (VC-H870U, 8870U)		—
6319				RDENT0461GEZZ	Power Board Assembly (VC-H870C, 8870C)		—
DIODE					Not Replacement Item		
D6301	98M-HZM2838//	HZM2838C	AB	INTEGRATED CIRCUIT			
CIOLS AND FILTER				IC901	95KUCB0027AS		AG
L6301	98M0405RA221K	220 μ H	AC	TRANSISTORS			
L6302	98M-L06TB822J	8.2mH	AC	Q901	95KUAD0088AC	2SD1565	AF
L6303	98M0405RA101K	100 μ H	AB	Q902,	95KUAC0004AZ	2SC945	AC
L6304,	VP-DF331J0000	330 μ H	AB	904			
6307				Q903	95KUAD0031SZ	2SD560	AF
L6305,	VP-DF221J0000	220 μ H	AB				
6306							
FL6301	RCiLi0060GEZZ	Filter	AD				
CONTROLS							
R6304	98MVZ066H155/	500k(B) Bias Adj.	AB				
R6311	98MVZ066H123/	2k(B) Normal PB Level Adj.	AB				
R6323,	98MVZ067L153/	5k(B) EE Level (L-CH) Adj.	AC				
6345		5k(B) EE Level (R-CH) Adj.					

Ref. No.	Part No.	Description	Code
DIODES			
△D901	95KUBC0112AZ	11E1	AB
△ 910			
△D911	95KUBC0150BZ	11ES2	AB
D912	95KUBC0150AZ	11ES1	AB
D913, 915	95KUBDAC5R6B	RD5.6ESAB1	AB
TRANSFORMERS			
△T901	95K116035140	PT2668 (VC-H870U, 8870U)	BA
△T901	95K116035152	PT2700 (VC-H870C, 8870C)	BB
CAPACITORS			
△C901	95KUGCQ103AB	0.01μF, Ceramic	AD
C902	95KUGZ0671ZZ	2200μF, 35V, Electrolytic	AG
C903	95KUGAC222GG	2200μF, 16V, Electrolytic	AE
C904	95KUGAE222GG	2200μF, 35V, Electrolytic	AG
C905	95KUGAJ470BU	47μF, 100V, Electrolytic	AD
RESISTORS			
△R901	95KUECC275AB	2.7M ohm, 1/2W, Solid	AA
△R902	95KUEBBR15AG	0.15 ohm, Fuse Resistor	AC
△R904, △ 905	95KUEBBR47AF	0.47 ohm, Fuse Resistor	AC
MISCELLANEOUS			
△	95KEHS0458ZZ	AC Cord	AL
△F901	95KPJCCB1601	Fuse, 1.6A/125V	AF
△F902	95KPJCED2501	Fuse, 2.5A/125V	AF
	95KPZZ0625ZZ	Fuse Holder	AB
	95KPKZ0450ZZ	Plug, 10 pin (PA)	AD
INFRARED REMOTE CONTROL UNIT			
	RRMCG0726GESA	Infrared Remote Control Unit Assembly	AZ
CABINET PARTS			
	93GNR120410	Battery Cover	AC

Ref. No.	Part No.	Description	Code
MECHANISM CHASSIS PARTS			
1	PGIDS0023GEFW	Retaining Guide	AE
2	MSPRC0142GEFJ	Retaining Guide Spring	AA
3	LANGT9133GEZZ	Video Head Cleaner Sub Chassis Ass'y	AF
4	LANGA0059GEFW	Solenoid Stopper	AB
5	MARMP0047GEZZ	Video Head Cleaner Arm Ass'y	AG
6	MLEVPO177GEZZ	Video Head Cleaner Drive Lever	AD
7	MSPRT0317GEFJ	Video Head Cleaner Arm Spring	AA
8	MSPRC0144GEFJ	Azimuth Spring	AA
9	RHEDU0070GEZZ	Audio/Control Head Ass'y	AS
10	PCAPS1015GEZZ	Retaining Guide Cap	AA
11	QPWBF2888GEZZ	Audio/Control Head PWB	AB
12	MLEVF0292GEZZ	Audio/Control Head Arm	AD
13	MSPRD0087GEFJ	Audio/Control Head Arm Spring	AA
14	LHLDZ1606GEZZ	Loading Block Holder Ass'y	AC
15	QPRBF3409GEZZ	Loading Block PWB	AD
16	RMOTM1049GEZZ	Loading Motor	AM
17	QPLGN0729TAZZ	Plug, 5 pin	AC
18	QSW-R0026GEZZ	Cam Switch	AE
19	NGERW1032GEZZ	Worm Wheel	AC
20	NPLYV0133GEZZ	Loading Motor Pulley	AC
21	NBLTK0058GE00	Loading Belt	AA
22	NGERW1031GEZZ	Worm Ass'y	AC
23	NSFTG0045GEFJ	Worm Shaft	AB
24	NGERH1129GEZZ	Master Cam	AC
25	MLEVF0281GEZZ	Pinch Roller Lever Ass'y	AN
26	MLEVF0290GEZZ	Relay Shifter Lever	AE
27	MLEVC0023GEZZ	Reverse Guide	AG
28	MSPRD0086GEFJ	Reverse Guide Spring	AA
29	RMOTN2019GEZZ	Capstan D.D. Motor	AZ
30	MLEVPO136GEZZ	Slow Brake Lever	AA
31	MSPRT0276GEFJ	Slow Brake Spring	AA
32	MSPRC0151GEFJ	Reverse Guide Retaining Spring	AA
33	MLEVF0289GEZZ	Relay Gear Drive Lever	AE
34	MSLiF0043GEZZ	Brake Shifter	AK
35	NSFTZ0068GEFD	Brake Lock Shaft	AC
36	MSPRC0143GEFJ	Absorber Plate Spring	AB
37	MSPRT0274GEFJ	Picture Scan Spring	AB
38	MLEVPO181GEZZ	Picture Scan Brake Lever	AA
39	MLEVPO131GEZZ	Picture Scan Reciprocating Lever	AC
40	RPLU-0083GEZZ	Brake Solenoid Ass'y	AF
41	NDAiV1046GEZZ	Take-Up Reel Disk Ass'y	AG
42	NGERH1128GEZZ	Idler Gear Ass'y	AN
43	NPLYV0134GEZZ	Reel Pulley	AC
44	MSPRD0085GEFJ	Shifter Spring	AB
45	PCOVP1018GEZZ	Shifter Spring Cover	AC
46	LHLDP1092GEZZ	Cassette LED Holder	AE
47	RH-PX0180GEZZ	Cassette LED	AD

Ref. No.	Part No.	Description	Code	Ref. No.	Part No.	Description	Code
48	QPWBF2977GEZZ	Reel Sensor PWB	AK	101	VRS-TW2ED221J	220 ohm, 1/4W, 5 %, Oxide Film	AA
49	RH-PX0181GEZZ	Reel Sensor	AE	102	VCKYTV1HB102K	0.001μF, 50V, 10 %, Ceramic	AA
50	LCHSS0016GEZZ	Reel Block Chassis	AL	103	VRS-TV1JD473J	47k ohm, 1/10W, 5 %, Oxide Film	AA
51	MLEVP0134GEZZ	Tension Relay Lever	AC	105	LANGA0051GEFW	Take-up Reel Disk Catch Holder	AB
52	MLEVP0195GEZZ	Tension Release Lever	AC	106	PGiDS0027GEZZ	Supply Impedance Roller Flange (L)	AA
53	MLEVP0132GEZZ	Back Tension Lever	AC	107	LANGF7061GEZZ	Release Pin Angle Ass'y	AC
54	MSPRT0273GEFJ	Back Tension Lever Spring	AB	108	QPLGN0229TAZZ	Plug, 2 pin	AB
55	NDAiV1047GEZZ	Supply Reel Disk Ass'y	AH	109	RC-KZ0019GEZZ	0.1μF, 25V, +80%~-20% Ceramic	AA
56	MSPRT0272GEFJ	Main Brake Spring	AC	112	PCAPS1018GEZZ	Slow Brake Shaft Cap	AA
57	MLEVP0135GEZZ	Intermediate Lever	AC	113	RPLU-0085GEZZ	Video Head Cleaner Solenoid	AM
58	MLEVP0129GEZZ	Main Take-Up Brake Lever	AE	114	CCHSS0018GE02	Reel Block Ass'y	AZ
59	MLEVP0128GEZZ	Main Supply Brake Lever	AE				
60	NGERH1121GEZZ	Loading Relay Gear	AA				
61	MSPRT0271GEFJ	Loading Reciprocating Spring	AA				
62	NGERH1120GEZZ	Take-Up Loading Gear	AA				
63	MLEVF0304GEZZ	Take-Up Loading Arm Ass'y	AC				
64	NGERH1119GEZZ	Supply Loading Gear	AA				
65	MLEVF0303GEZZ	Supply Loading Arm Ass'y	AC				
66	LCHSM0109GEZZ	Main Chassis Ass'y	AR				
67	LBNDK1002GEZZ	Tension Band Ass'y	AD				
68	LHLDZ1607GEZZ	Tension Spring Hook Plate	AA				
69	MSPRT0275GEFJ	Tension Spring	AA				
70	MLEVF0291GEZZ	Tension Arm Ass'y	AF				
72	MSLiF0049GEFW	Take-Up Pole Base Slider	AB				
73	LPOLM0037GEZZ	Take-Up Pole Base Ass'y	AG				
74	NROLP0062GEZZ	Guide Roller Ass'y	AE				
75	MSLiF0048GEFW	Supply Pole Base Slider	AB				
76	LPOLM0036GEZZ	Supply Pole Base Ass'y	AG				
77	PGiDM0066GEZZ	Take-Up Loading Rail	AB				
78	PGiDM0067GEZZ	Supply Loading Rail	AB				
79	NSFTL0563GEFW	Supply Impedance Roller Inner	AC				
80	PGiDH0031GEFW	Supply Impedance Roller Flange	AA				
81	NROLP0084GEZZ	Supply Impedance Roller	AC				
82	RHEDT0026GEZZ	Full Erase Head Ass'y	AK				
83	QPWBF2936GEZZ	Full Erase Head PWB	AA				
84	LANGA0054GEZZ	Supply Reel Retainer Ass'y	AD				
85	NBLTK0059GE00	Reel Belt	AB				
86	MLEVP0146GEZZ	Auxiliary Fast Forward Brake Lever	AE				
87	MSPRT0282GEFJ	Auxiliary Fast Forward Brake Spring	AB				
90	PGiDC0039GEFW	Drum Base	AL				
91	DDRMW0008HE13	Upper and Lower Drum Ass'y	BU				
92	QBRSK0021GEZZ	Earth Brush Ass'y	AC				
93	RMOTP1102GEZZ	Drum D.D. Motor Ass'y	AW				
96	QCNW-4880GEZZ	Full Flat Cable (Drum D.D. Motor)	AN				
97	QCNW-6540GEZZ	Full Flat Cable (Capstan D.D. Motor)	AH				
99	RDTCH0018GEZZ	Dew Sensor	AG				
100	QSOCN0534REZZ	Socket, 5 pin (MF)	AC				

CASSETTE HOUSING CONTROL PARTS

	CHLDX3052GE53	Cassette Housing Control Assembly	AY
301	PGiDM0069GE00	Down Guide	AC
302	QSW-F0034GEZZ	Cassette Erase Protection Switch	AC
303	LHLDX1014GE00	Cassette Housing Frame (R)	AC
304	MARMP0043GE00	Open Lever A	AA
305	MARMP0044GE00	Open Lever B	AA
306	NGERW1036GEZZ	Phase Gear	AA
307	MSPRT0290GEFJ	Reciprocating Lever Spring	AA
308	MSPRD0088GEFJ	Drive Gear Spring (R)	AA
309	NGERW1034GEZZ	Drive Gear (R)	AB
310	MSPRT0277GEFJ	Reciprocating Spring	AA
311	NGERW1033GEZZ	Worm Wheel Gear	AB
312	LANGF9355GEFW	Worm Bracket	AB
313	NBRGP0013GEZZ	Bearing	AA
314	MLEVP0142GE00	Open Lever	AA
315	MSPRD0091GEFJ	Open Lever Spring	AA
316	MLEVP0141GEZZ	Switching Lever	AA
317	MSPRT0280GEFJ	Switching Lever Spring	AA
318	NSFTD0016GEZZ	Worm Shaft Ass'y	AE
319	MLEVP0140GEZZ	Clutch Lock Lever	AA
320	MSPRT0279GEFJ	Clutch Lock Lever Spring	AA
321	MLEVP0139GEZZ	Clutch Release Lever	AA
322	MSPRD0092GEFJ	Clutch Release Lever Spring	AA
323	MLEVP0138GEZZ	Clutch Lever	AA
324	NPLYV0135GEZZ	Pulley	AA
325	NBLTK0060GE00	Cassette Loading Belt	AB
326	LANGF9354GEFW	Upper Plate	AD
327	LHLDX1011GE00	Slider Holder (L)	AB

Ref. No.	Part No.	Description	Code
328	MSPRP0097GEFJ	Cassette Spring	AA
329	LANGF9357GEFW	Slider Lock (L)	AA
330	MSPRT0281GEFJ	Slider Lock Spring	AA
331	MSLiF0044GEFW	Slider	AF
332	MLEVP0137GE00	Lock Release Lever	AA
333	MSPRD0093GEFJ	Lock Release Lever Spring	AA
334	MLEVP0143GE00	Slider Lock Cover	AA
335	LANGF9356GEFW	Slider Lock (R)	AA
336	LHLDX1010GE00	Slider Holder (R)	AB
337	NGERW1035GEZZ	Drive Gear (L)	AB
338	MSPRD0089GEFJ	Drive Gear Spring (L)	AA
339	LHLDX1015GE00	Cassette Housing Frame (L)	AC
340	NSFTD0015GEFD	Main Shaft	AD
341	QPWBF2894GEZZ	End Sensor PWB	AB
342	RH-PX0176GEZZ	Phototransistor	AE
343	QPWBF3194GEZZ	Start Sensor PWB	AC
344	QSW-F0040GEZZ	Cassette Switch	AD
345	ZTAPEZ790008E	Rubber Mat	—
347	QSOCN0595GEZZ	Socket, 5 pin	AB
348	VSDTC124F / -1	Transistor	AC
349	VS2SA937-Q / -1	Transistor	AC
350	VRD-RA2BE153J	15k ohm, 1/8W, 5%, Carbon	AA
351	VRD-RA2BE223J	22k ohm, 1/8W, 5%, Carbon	AA
352	VRD-RA2BE103J	10k ohm, 1/8W, 5%, Carbon	AA
353	VRD-RA2BE472J	4.7k ohm, 1/8W, 5%, Carbon	AA
354	VRD-RA2BE332J	3.3k ohm, 1/8W, 5%, Carbon	AA
355	RC-KZ0028GEZZ	0.047µF, 16V, 20%, Ceramic	AA
356	QCNW-4789GEZZ	Connecting Cable	AF
401	LX-WZ1020GE00	Cut Washer (4.2W-6.0-0.5)	AA
402	LX-HZ3046GEFD	Screw (B Tight BTN3P + 6S)	AA

SCREWS, NUTS, WASHERS AND WIRE CLAMP

201	XNFSD20-16000	Adjusting Nut	AA
202	XWHSD26-05060	Washer W2.6S-6-0.5	AA
204	LX-BZ3095GEFD	AC Head Screw	AA
205	XBPSD26P06000	Azimuth Adjusting Screw	AA
206	LX-BZ3096GEFD	Tilt Adjusting Screw	AA
207	XNFSD40-31000	Adjusting Nut (A/C Head)	AB
208	LX-WZ1048GEZZ	Washer W3.1-5.4-0.5	AA
209	LX-WZ1041GE00	Washer W2.6-6-0.5 (LM)	AA
210	XHPDSD26P06WS0	Screw C2.6P + 6S	AA
211	XRESJ30-06000	E Ring-3	AA
213	LX-NZ3046GEFW	Adjusting Nut (X-Position)	AB
215	LX-WZ1003GE00	Washer CW2.1-5-0.5	AA
216	XRESJ12-03000	E Ring-1.2	AA
217	XHPDSD26P03000	Screw 2.6P + 3S	AA

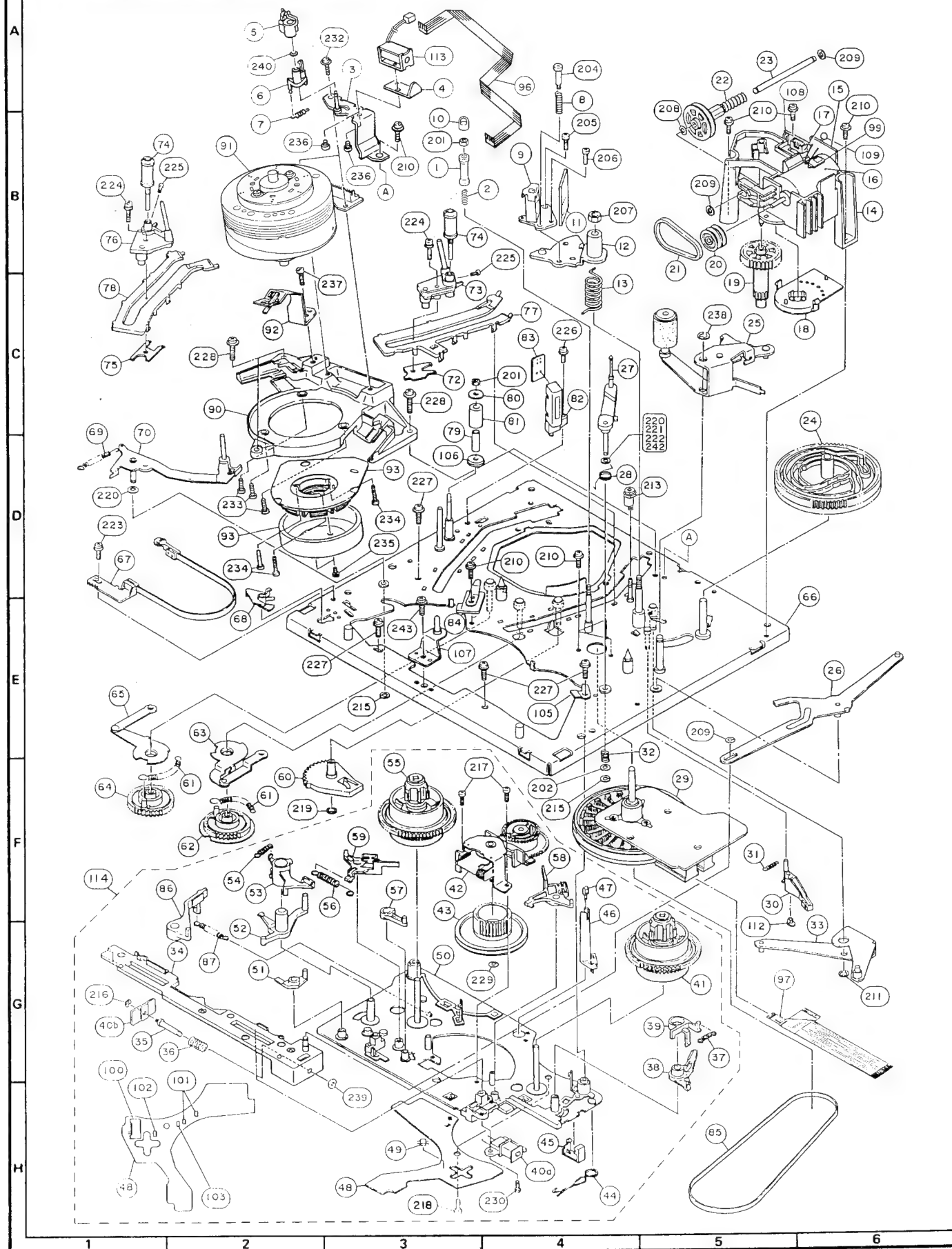
Ref. No.	Part No.	Description	Code
218	XHPDSD20P03000	Screw 2P + 3S	AA
219	XRESJ25-04000	E Ring-2.5	AA
220	XWHJZ25-05050	Washer W2.6-5-0.5	AA
221	XWHJZ25-01050	Washer W2.6-5-0.13	AA
222	XWHJZ25-02050	Washer W2.6-5-0.25	AA
223	LX-HZ3043GEZZ	Screw W2.6P + 6S	AA
224	LX-BZ3099GEZZ	Screw WSW2P + 11S (W5)	AB
225	LX-XZ3030GEFD	Screw M2x4	AC
226	XHPDSD26P08WS0	Screw C2.6P + 8S	AA
227	XJPSD26P08WS0	B Tight Screw C2.6P + 8S	AA
228	XHPDSD30P08WS0	Screw C3P + 8S	AA
229	LX-WZ1040GE00	Washer CW2.5-6-0.5	AA
230	XJBSD20P06000	B Tight Screw 2P + 6S	AA
232	LX-HZ3056GEFD	Screw WSW3P + 10S + W6	AA
233	LX-BZ3064GEFN	Screw SW3P + 6S-Ni	AA
234	XBPSD26P12J00	Screw SW2.6P + 12S	AA
235	XBPSD30P05J00	Screw SW3P + 5S	AA
236	XBPSD20P04J00	Screw SW2P + 4S	AA
237	XHPDSD30P06000	Screw S3P + 6S	AA
238	LX-RZ3001AEZZ	E Ring-3 (Curl)	AA
239	LX-WZ1042GE00	Washer CW2.7-7-0.5	AA
240	LX-WZ1005GE00	Washer 1.6W-4-0.5	AA
242	XWHJZ25-04050	Washer W2.6-5-0.4	AA
243	XHPDSD30P04WS0	Screw C3P + 4S	AA

MECHANICAL PARTS

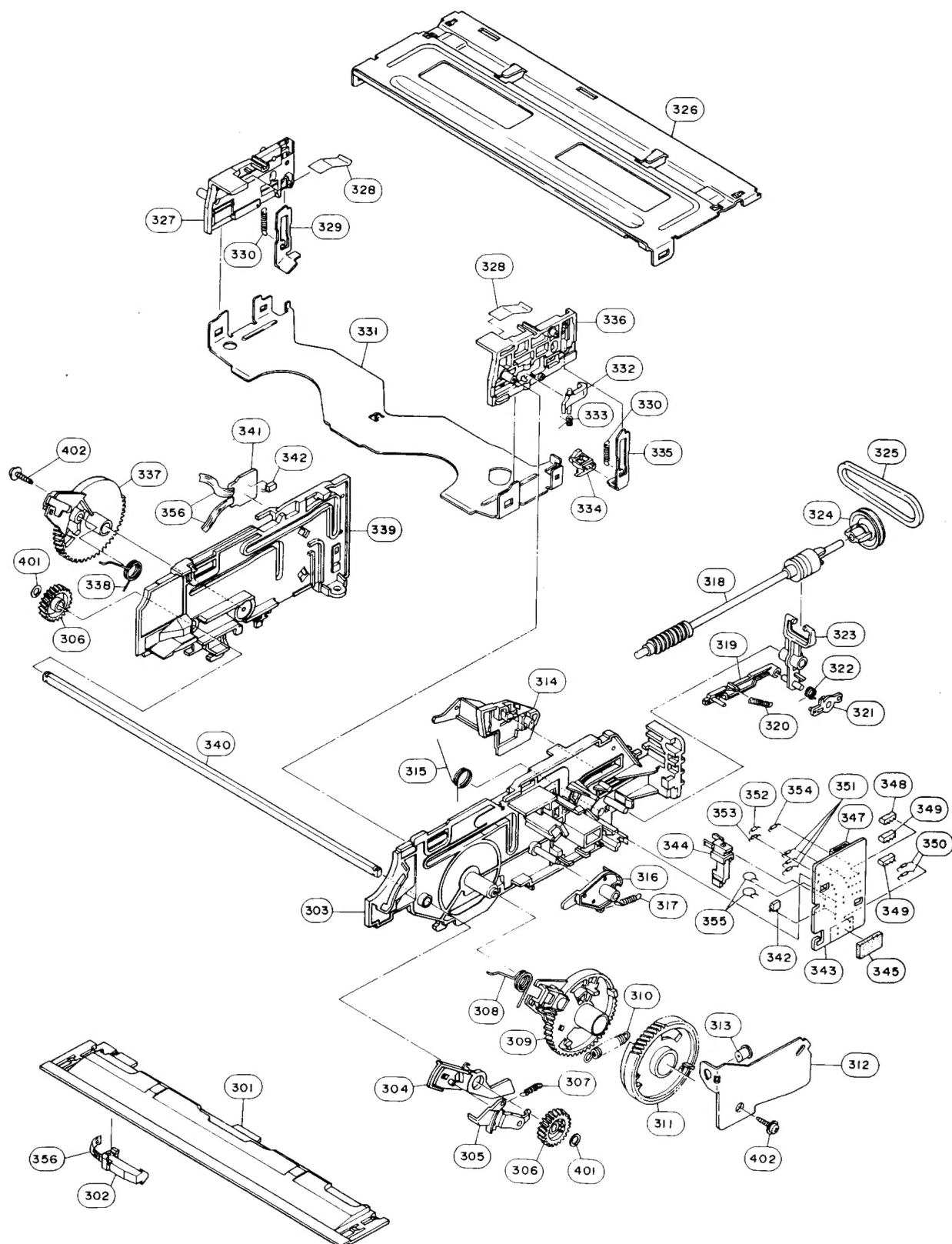
601	CCABB1092GEK1	Main Frame	AW
602	CCABA3054GE03	Upper Cabinet Ass'y (VC-H870U/C)	AS
602	CCABA3054GE01	Upper Cabinet Ass'y (VC-8870U/C)	AS
602-1	GCABA3054GESJ	Upper Cabinet (VC-H870U/C)	AR
602-1	GCABA3054GESM	Upper Cabinet (VC-8870U/C)	AR
602-2	TLABS0049GEZZ	Label	AB
603	GBDYU3052GEZZ	Bottom Panel	AG
604	GCOVA1504GEKZ	Terminal Plate	AF
605	LHLDZ1616GEZZ	Hi-Fi PWB Holder	AA
606	LX-HZ3047GEFF	Screw	AA
607	LHLDZ1609GEZZ	Y/C PWB Holder	AA
608	QEARP0276GEFW	Upper Cabinet Earth	AA
609	MSPRC0145GEFJ	Power Earth Spring	AA
610	XEBSD30P12000	Screw	AA
611	XHPDSD30P06WS0	Screw	AA
612	XEBSD40P12000	Screw	AA
614	LX-HZ3040GEFF	Screw (for Upper Cabinet)	AA
616	JKNBP1054GESA	Slide Knob	AC
617	LHLDZ1677GEZZ	Fluorescent Display Tube Holder	AD
618	LHLDW1113GEZZ	Wire Holder	AA
619	LANGF9367GEFW	Cassette Holder Angle	AB
620	TLABM2016GEZZ	Model Label (VC-H870U)	AA

Ref. No.	Part No.	Description	Code	Ref. No.	Part No.	Description	Code
620	TLABM2017GEZZ	Model Label (VC-8870U)	AA	500-3	LANGF9405GE00	Door Support Angle	AF
620	TLABM2065GEZZ	Model Label (VC-H870C)	AC	500-4	HiNDP1760GESA	Indication Plate, inside the door	AG
620	TLABM2066GEZZ	Model Label (VC-8870C)	AC	500-5	HDECQ0597GESA	Decoration Plate, Front	AQ
621	CLEGP9053GE03	Left Leg (VC-H870U/C)	AF	500-6	GCOVA1425GEZZ	Remocon Cover	AC
621	CLEGP9053GE04	Left Leg (VC-8870U/C)	AF	500-7	PKAi-0002GEZZ	Door Latch	AD
622	CLEGP9054GE03	Right Leg (VC-H870U/C)	AF	500-8	PCOVU9157GESB	Filter, Fluorescent Display Tube (VC-H870U/C)	AE
622	CLEGP9054GE04	Right Leg (VC-8870U/C)	AF	500-8	PCOVU9157GESG	Filter, Fluorescent Display Tube (VC-8870U/C)	AE
623	GLEGP9029GEZZ	Rear Leg	AB	500-9	QEARP0306GEFW	Earth Plate	AC
624	PSPAZ0202GEZZ	Spacer	AC	500-10	JB TN-2227GESA	Button, Reocrd	AA
FRONT PANEL PARTS				500-11	LHLDZ1665GEZZ	Door Catch (Right)	AB
500	CPNLC1645GEK1	Front Panel Ass'y (VC-H870U/C)	BB	500-12	JB TN-2309GESB	Button, Eject (VC-H870U/C)	AB
500	CPNLC1645GEK2	Front Panel Ass'y (VC-8870U/C)	BB	500-12	JB TN-2309GESA	Button, Eject (VC-8870U/C)	AD
500-1	JB TN-2330GESB	Button, Power (VC-H870U/C)	AB	500-13	HDECQ0710GESB	Cassette Cover (VC-8870U/C)	AH
500-1	JB TN-2330GESB	Button, Power (VC-H870U/C)	AB	500-13	HDECQ0710GESB	Cassette Cover (VC-8870U/C)	AH
500-1	JB TN-2330GESA	Button, Power (VC-8870U/C)	AB	500-14	MSPRD0103GEFJ	Spring (for Cassette Cover)	AB
500-2	HBDGB1005GESB	Badge "SHARP"	AD	500-15	XEBSD30P10000	Screw	AA
				500-16	TLABH0473GEZZ	Tuning Label	AA
				500-17	GDORF1808GESB	Door (VC-H870U/C)	AK
				500-17	GDORF1809GESB	Door (VC-8870U/C)	AK

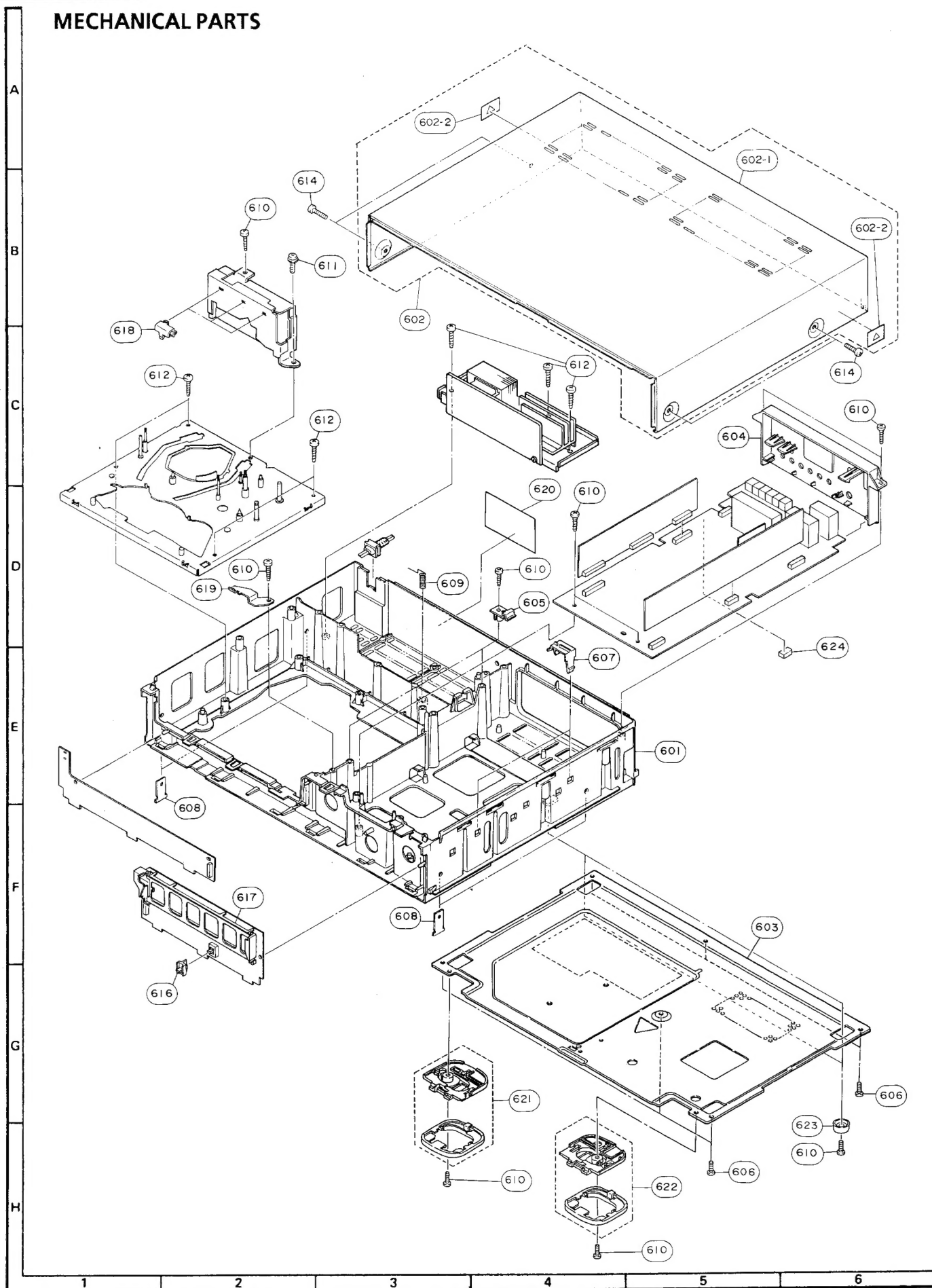
8. EXPLODED VIEW OF MECHANICAL PARTS



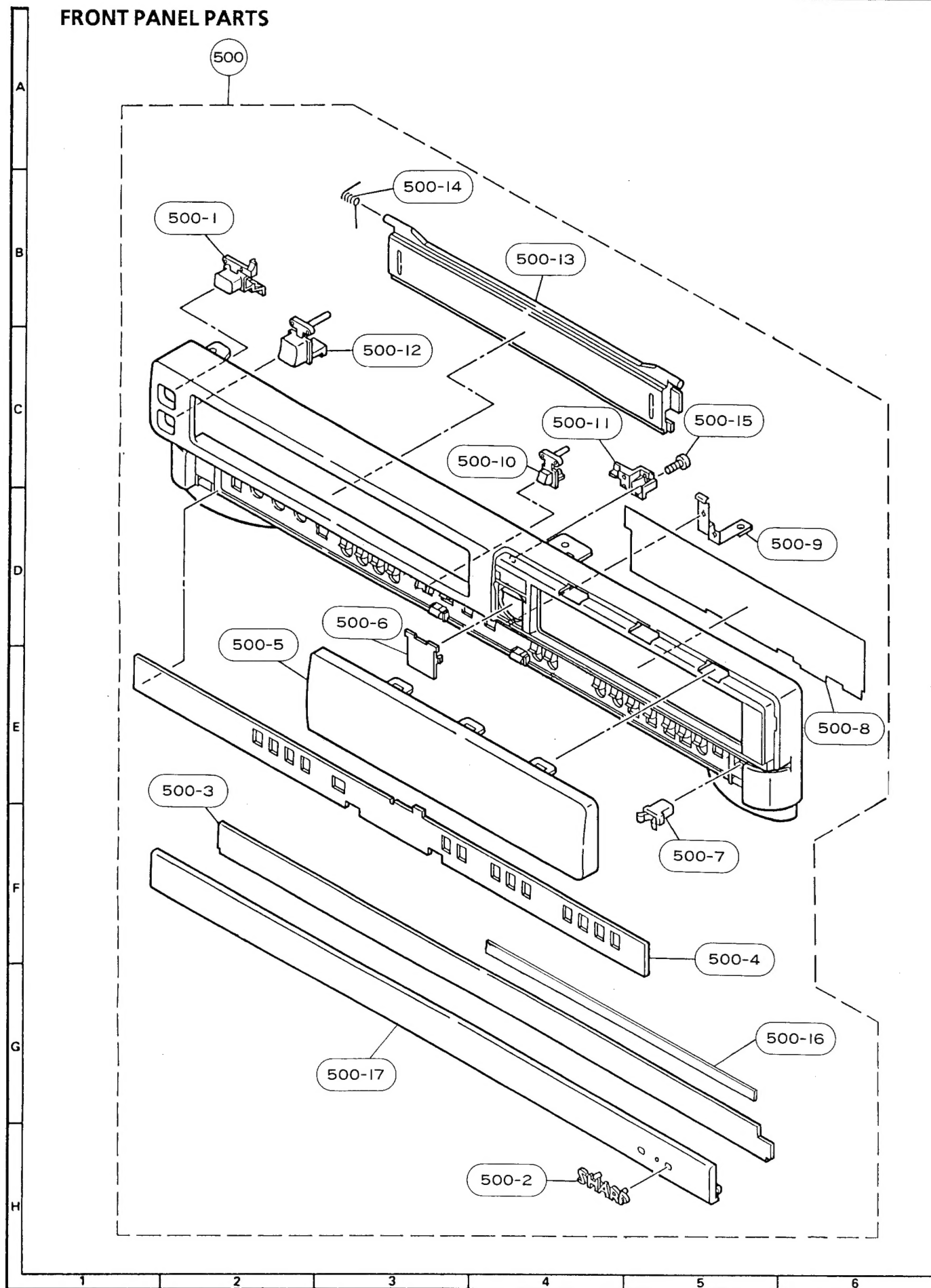
CASSETTE HOUSING CONTROL PARTS



MECHANICAL PARTS



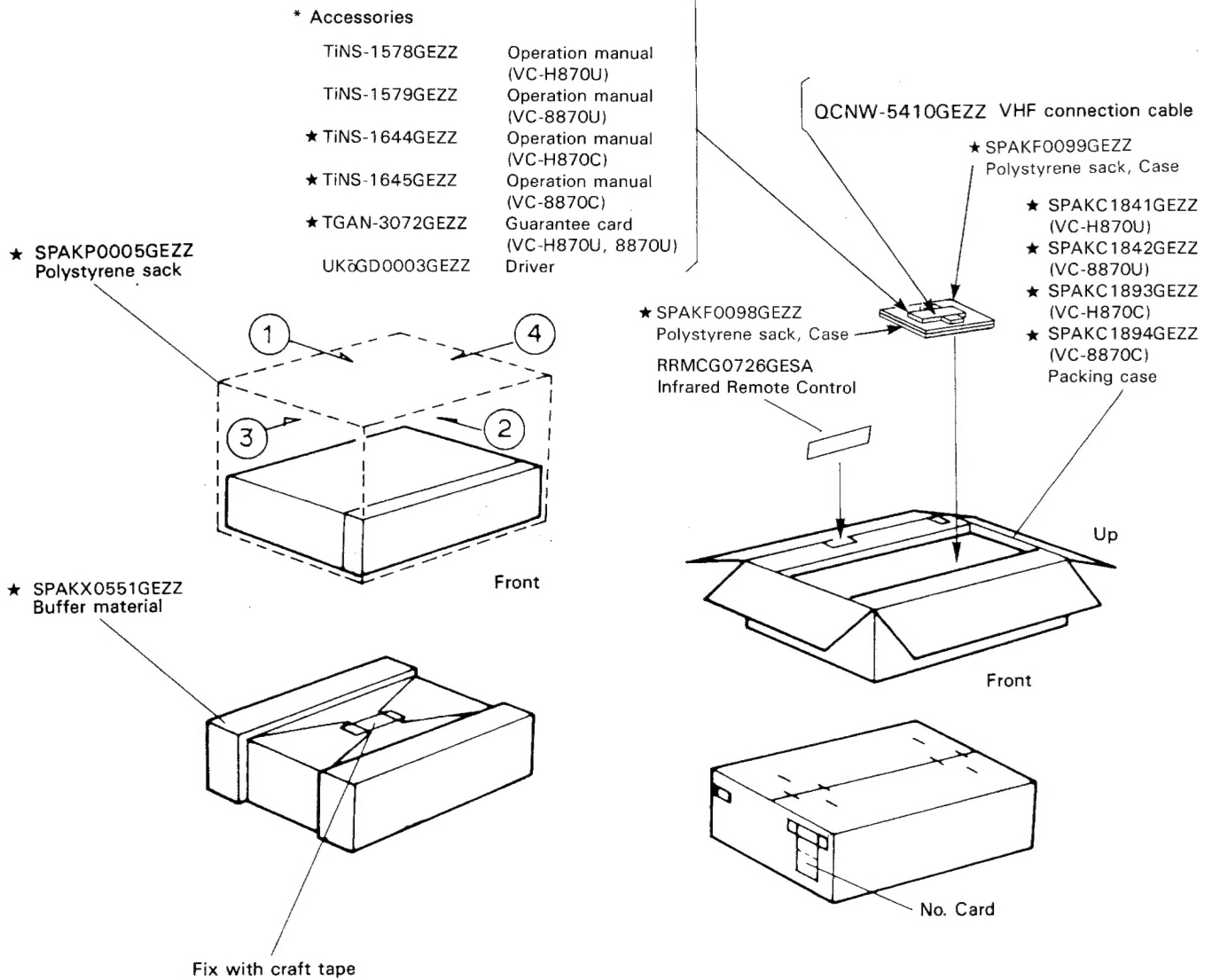
FRONT PANEL PARTS



9. PACKING OF THE SET

• Setting positions of the Knobs

Channel (RF)	3 ch	Blue screen	ON
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★ Not Replacement Items